Emir Macari: This is the last panel of the day. We've had, so far, a day and a half of very, very good conversations, very good dialogue, and now it looks like we're going to find policy solutions. So, the discussion theme is policy solutions based on applied engineering and science, but obviously on risk, on feasibility, on cost, everything that has been discussed up to this point is on the table. I will be flashing some of the questions that were prepared by the organizing committee and were sent to the panelists ahead of time for them to open up some thoughts. But we also have a large set of questions from the audience that I will be interjecting throughout this panel.

And the first question is -- the first issue that we're going to be discussing here is where do we go from here. We've heard earlier some discussions that you go back home after symposium and the first day you're still all into it, and as soon as you check your email and you see 150 incoming mails, you forget all about what you had been doing for the past two days. So, where do we go from here, the vision of the ultimate goal, what are the critical needs, what policies would be appropriate, and what flexibility is appropriate for policy implementation and consequences. You see surrounding the screen the four agencies that have been sponsoring this meeting, and obviously it shows the willingness to collaborate at the federal, state, and local levels. So, that is, from the start, very encouraging. Any one of these agencies could have said, no, look, we're not ready for this kind of dialogue, we don't want to be put under a microscope, but everybody is willing to have this dialogue, and that is very positive.

I would like to just briefly introduce the panel members. First, just to my left, is Mr. Mike Hardesty from the California Central Valley Flood Control Association. Next to him is Mr. Ed Hecker from the US Army Corps of Engineers Headquarters. Next to him, Mr. Butch Hodgkins from State of California Reclamation Board. Next to him is Maria Rea from NOAA Fisheries. Next to her is Mr. Ron Stork, Friends of the River. Next

to Ron, Keith Swanson, California Department of Water Resources. And next to Keith is Tim Washburn, Sacramento Area Flood Control Agency. We will then allow for opening statements by each of them, three to four minutes, and after that we will move into these questions. We will try to be as interactive as possible, so also be thinking of questions -- panelists, be thinking of questions that you may want to pose to another panelist. I think that may bring interest, obviously keeping the discourse civil and respectful. Thank you very much. Mike? Please.

Mike Hardesty: Good afternoon. I'm Mike Hardesty. As the program indicates, I'm the president of the California Central Valley Flood Control Association, but I think it's important to note at this point that what I do every day is I manage to reclamation districts. We are the local maintainers for the federal project levees in our area, which happen to be south and west of Sacramento, along Viola bypass. Not necessarily the norm in the flood control system, but certainly an important component of that system. And I'm going to speak largely from the perspective of being a manager of the local maintaining agency. We like to consider ourselves to be the third leg of the three-legged stool, which is the Corps, the State Reclamation Board, and the local interests.

The first question that was posed to us was knowing that there is a critical need to come to some resolution on this issue of vegetation, and I will second the thought that was expressed earlier in the day that these issues are intrinsically tied to all of the other issues with regard to levee maintenance, rehabilitation, and operations, it's very difficult at times for a person in my perspective to look at this and say that these are separable and issues that can be resolved without considering the impact on the other things that we do on a daily basis.

But having said that, the question is what are our agency's critical needs and mission priorities, with regard to the federal project levees. And it's a relatively simple question from my perspective, and that is that public

safety is the number one priority in our lives. Nothing else comes even close to that. What we do is we protect the lives, the property, the infrastructure, and resources up to the limits, and maybe in many cases exceeding the limits, of our financial capacity. Having been through almost 33 years of levee experience, I have been faced with situations, and I know my colleagues have as well, of spending money we did not have to preserve the integrity of the levees for which we're responsible for.

And worrying about where we got paid for that effort after the fact. I don't know how many people ever face the idea of literally contracting -- maybe difficult today, it wasn't so much in the past -- basically going out and getting a contractor or getting equipment or people to work without the promise of getting paid. All we could do was say we will ensure you that at some point in time we will pay you. I've been told that that doesn't work today as well as it used to. So, there's no real -- I guess I'm going to get to the point of saying that there's no real simple answer to this, but from our perspective, public safety cannot be relegated to a decision which is balanced in any way or offset in any way by other considerations.

We're going to put public safety first. The question on all of these issues, and with regard specifically to vegetation issues on levees, has to be is the public safety being served by the decisions we make with regard to vegetation or, for that matter, any other encroachments on levees and levee environments? That's the question I would ask myself. That's the question I would ask my staff is are we putting our resources into the best outcome for our levee maintenance? Are we getting, one, the best bang for the buck? And are we not squandering a rather precious resource in our business, which is money, for something that produces no tangible benefit after the fact?

That leads me to my first problem that we have as a local agency, and that is our financial structure. Since the middle 1980s, the financial responsibilities for levee maintenance and rehabilitation have been progressively passed down from the federal government to the state and the state to the locals. And that may not have been such a bad idea from a federal perspective, or for that matter, even from a state perspective. It sure as hell hurts from our perspective because what didn't change was our ability to generate funds. Not only did they not change positively, they changed rather negatively at some point about 1979 that put serious constraints on our ability to generate new revenues to meet increasing responsibilities.

Given that set of circumstances, it's not hard to understand why, over the years, maybe a lot of this vegetation is there by virtue of some benign neglect on the part of agencies who have to prioritize what they're going to spend their money on. Some of us have been fortunate enough to be considered in California special districts that are enterprise districts, and we actually have resources from other operations. That's really the exception to the rule. Most reclamation districts and levee maintenance districts are nonenterprise districts and are tied directly to their ability to generate assessments.

And if you think that a rural reclamation district is going to have an easy time going and asking its constituency, the farm community, for a large assessment to pursue levee improvements and vegetation removal, then you're living in the wrong world. It isn't going to happen, by and large. We've been told that. We've also looked at the economics in regional areas that have high financial needs. What we find is, in large part, in the Central Valley, particularly on the floor, that the financial capacity of the agricultural community to pay for these efforts is zero to none.

So, faced with the issue of having to look at vegetation as a competing interest against what we consider to be the fundamental responsibility of

the agency, which is to protect those levees and keep them intact and functional, our choices, unfortunately, are going to be maybe for vegetation public safety. And in that I guess I would suggest that the outcome there may be a little more apparent from our perspective than from others, and that is that the state and the federal government, when push comes to shove and the local agency dynamic is put into this, that we're going to go in the route of public safety. And the state and the feds are going to have to either follow us or chase us to get us to change that. And with that, I'll go ahead and pass that on.

Emir Macari: Ed?

Ed Hecker: [I'm just going to start out] by congratulating everybody that's been an active participant in this process these last couple days because as I think was said by a couple panelists on the previous panel, this has been extremely informative for myself and for most of the members that have been here from the Corps of engineers and really all of our partners who've been working very hard since our Katrina experience to address this whole challenge of public safety standards, risk management. And I've got many pages of notes I'm going to take back [and have little time to address all those comments right now, so I'll try and focus] on a few key points I hope resonate with the theme of what we've heard discussed over the past couple days.

I think one of the things that was said right from the very beginning is going back to the beginning of the federal/state relationship on this system back in the early 1900s. We've had a very good relationship and partnership with the State of California and the Corps of Engineers and the state's partners in addressing this system. That's worked through the last 90 years, and we stand here today talking about the challenges that we face with the system looking forward based on both national and regional experience. And I think what we have right now is an opportunity to go beyond the dialogue that started this process with the

draft white paper on vegetation to look at evaluation of the whole system an starting a broader dialogue with California as it initiates the Flood Safe Program.

And really you have a common objective in terms of the creation of a safe, reliable, and sustainable flood risk management system within the State of California and the Central Valley. We've heard a lot of comments, suggestions, ideas, in some cases discussion between the science and engineering community in terms of what the standard is and what it should migrate to. But I think throughout all of it, there's been a fair amount of common ground that's been identified. And that's one of the places that we want to start as we move forward is identify where we have common ground and where we need to continue to have discussion, analysis, and development of areas where we don't yet agree on the way ahead.

But clearly, first and foremost, as the first speaker noted, is I think common ground, in terms of public safety being the number one priority for everybody in this audience is clear, and I think with that, we can work towards achieving the other areas and objectives that we have together, in terms of the system approach to risk. Compatible use design between, you know, the engineering standards and what is compatible in terms of achieving the environmental objectives that we also want to achieve with respect to the central valley. Very quickly, as we came into this, we head a two-step process that we were, and continue to, pursue, with some expansion, in terms of how we're going to address the vegetation standards in context with a system of standards that has to be addressed from an engineering standpoint with [respect to] Central Valley system.

Clearly we still want to take the input that we've received in the last [two] days, in terms of the standards themselves. We will promulgate, after review of those -- a final draft standard. We are considering, and are most likely to move forward with, external peer review of those standards. I'm

not going to lay out -- working through the details of how we'd execute that peer review, but we feel that that's going to be a necessary part of the process to assure that we have at least the most effective standard and solution that we can achieve both in terms of the standard and the policy that we use to implement that standard.

Then we'll develop an implementation plan, and we'll include within that an updated regional variance process. And throughout that, we will provide and conduct a national roundtable using existing forums so that we can ensure that all of our stakeholders in the nation that we have to address as a national public agency have an opportunity to inform this final process. One comment I'll make in terms of the flexibility from a policy standpoint, in terms of Public Law 8499 -- because I think one of the high pressure points that's emerged over the past couple days was implementation timelines. And the suggestions that we need a phased approach. We need a short-term, long-term approach to reach a sustainable system state, if you will.

What we're looking at right now -- I mean, nobody's going to sit up here in my position and say, well, we've heard everything and here's our new policy. But we are going to consider the factors that we have to consider in California in terms of the known engineering challenges that we have with this system, as laid out in DWR's papers, in context with the ONM standard that we're addressing with respect to the vegetation standard, and look at what we need to do to create sufficient flexibility to achieve a common goal as expressed in a definitive plan to address that -- the phase I or whatever it might be.

But we are willing to re-look that in context with a partnership and a plan that is put together to address that system [look] at this particular challenge that we have in the Central Valley. So, I can't add much more detail on that, other than my intent to lay out that we will be flexible, and we will continue to work in partnership with the agencies that are

working this common ground in the State of California. So, more to follow on that as we move forward.

Again, I think we have a unique opportunity as partners, as we sit here today, not just looking at the opportunities in California but in context with the national challenge of flood risk management. There needs to be a sense of urgency because of the challenges of achieving an acceptable risk posture with respect to public safety in the Central Valley. We want to make sure that as we look at timelines, we keep that sense of urgency in place. But, again, as partners, I think we can take advantage of this opportunity and really move forward with a good public safety standard and a good implementation process from this point forward.

Butch Hodgkins: You know, I've been debating whether or not I could keep my collaborative hat on or put on my other hat, which comes more often to me, as I get older, which is sort of a nasty hat. I want to say that I think Ed's comments made me decide I absolutely want to put on my collaborative hat, okay? And as I thought about how I would answer this question, and I think it's important that you all understand I speak up here only for myself, not for any of the other Reclamation Board members, but I think this has been an eye-opener for me. I'm one of the jack-of-all-trade engineers who never really understood why there was such an aversion to vegetation in connections and levees, but because it was sort of the engineering way, I accepted it most of the time, until we ran in, at SAFCA, to the Endangered Species Act and the need to address what very clearly were levee-threatening problems in some way that would get us through compliance with the Endangered Species Act.

And out of that I think came a great partner in the Sacramento district and, in most cases, in NOAA and the Fish & Wildlife Service in terms of [alarming] us to engage in a discussion to figure out how to move forward with designs that addressed at least the people who were there -- the Sacramento District, SAFCA, State of California, and the resource

agencies -- an approach that was a compromise at meeting everybody's objectives, but didn't compromise, at least in any way that we knew, the public safety of the fix that was going in. And then along comes a vegetation paper that says or at least has been described to me as saying, and I think as I read it I saw this, no vegetation larger than two inches in diameter on the levees or on the projection of the levees.

And so there's a huge setback in California that comes from that kind of approach when you're not ready to get in and look at the details of things like -- you know, when it's the 3 to 1 projection of the levee slope down into ground that's never really part of the levee, but comes out in the bank of the river, where we're trying to stop erosion, and we need to put some vegetation behind the rock. And, generally, when we do biological rock, we put in three times as many tons per foot as has gone in, in nonbiological rock, and it's there forever, but you need some vegetation to help take care of with the embedded woody debris, some shaded habitat, so perhaps we can address also the issues with the Endangered Species Act. Now, I'm not arguing or trying to convince anybody that the Endangered Species Act set what I consider to be good priorities, but it's a law. And I do know that in order to get things done, you've got to comply with the laws.

This policy also comes at a time -- the Endangered Species Act, the implications there are an incredible cost or mitigation for a blanket vegetation removal approach in California, as well as significant cost for mitigation from a CEQA standpoint, which is not a federal law and maybe not a concern to the Corps but a very important law in this state. And then, in addition to that, you heard Stein make reference to and I'm going to make reference to -- FEMA is paying close attention to the Corps's annual inspection reports on these levees, and when the Corps's indicated that there is a maintenance deficiency, FEMA is, in effect, saying that levees is not certifiable and does not provide 100-year flood protection.

Now, I think it's important for everybody to understand I'm not bringing it up because it's a huge development issue but because I know that the one thing that really will motivate local elected officials and probably a lot of state elected officials to get involved in something is something that comes along and threatens economic development for them. It is a primary motivator. Flood risk is not a primary motivator. It's very hard to get people to understand that. People in Sacramento do, but it will take four or five years before people do in the San Joaquin County and farther up the river. It takes time. But if we don't get this process a little bit under control here and not comprise public safety but move forward in a way where we don't trigger these other significant events, this process is going to spin out of control and become a purely political process.

And while I think that's the nature of the system, it's all politics, and that's how we get the answers in the end, and to some extent that's how we've gotten where we are, with the conflicts between the environmental laws and the Corps's mission. We lose control [in] these kind of informed discussions, where I also was just amazed at the incredible opportunity to learn and for further partnering and an improved approach here get lost in the politics of this in 30-second sound bites and five-minute meetings with your Congressional representative in Washington. And those decisions are not always really sound, long-lasting decisions.

So, I'm out of time, and I'm going to stop. I do think there are specific things here that are problems where it should be very clear that we can go forward and develop standards, tree throws. You have to be able to see the surface of the levee if you're going to be able to patrol the levee. There's no question about that. And I think in the long term, what we need to do at the state level, and I know the Rec Board wants to try to help do this, is come up with a vision for a new state plan of flood control that recognizes we are committed to incorporating into that plan appropriate provisions to help preserve and enhance the ecosystem and all of the

benefits that it brings to our quality of life. So, I'm hopeful, as we come forward, we will incorporate that in our vision for the future.

Maria Rea: Thank you. Good afternoon. My name's Maria Rea with NOAA Fisheries, and I want to start by thanking the organizers of this conference -- SAFCA, DWR, the State Rec Board, and the Corps -- for bringing all of us together to discuss this important issue. I've heard most of the panels today, I've seen notes on the panels yesterday. I'm very impressed with the quality of discussion, especially bringing together all the different disciplines and engineers, talking to each other about the science behind the issue of vegetation on levees. We don't have all the answers at NOAA Fisheries, and we're trying to learn along with the rest of you, so again, I appreciate this opportunity.

I do think we're at a crossroad with conflicting policies. On protection of endangered species, recovering the threatened and endangered species that we have custodial responsibility for at NOAA Fisheries, and protecting public health and safety through redesign of the levee system. I think we can certainly work to achieve both of those objectives, and in fact, it's incumbent upon us, as federal agencies, where there are valid mandates from two federal agencies to talk to each other and work this out collaboratively. I think we're extremely fortunate in California, speaking as a federal agency, to have the kind of institutional state agencies that we do -- through DWR and Fish & Game -- and to have the kind of local leadership of the Sacramento Corps District, SAFCA, and the other flood control agencies. I think there's a great deal of willingness to try to look at the regional science, including the soil types, the wind conditions, some of the things that have been talked about, and create a solution for the set of conflicting mandates that's based on the regional science.

You've already heard some of the historically of the loss of riparian habitat in the Central Valley. I won't go into that in great detail. Our

statistics are that we have about 2 percent of historic habitat remaining, so you can imagine, from a fishery's perspective, how incredibly important that remaining habitat is. I realize we may be constrained in the system, in terms of levee setback projects, but I hope if we look at more of a comprehensive planning approach, that that's not off the table. There may be more targeted areas that we can really restore some of those ecosystem functions that have great benefit to salmon and steelhead and the species that we're concerned with.

I also want to share with you just an opening that we are very focused on right now internally in NOAA Fisheries on developing a multispecies recovery plan for the Central Valley. And we've spoken a lot about dispassionate science here and looking through multiple disciplines. We've done that in developing this recovery plan. We've looked at all the different threats to species recovery -- from everything that you could imagine -- water quality, passage, predation, ocean conditions. And I just want to share with you that, in a preliminary way, we have ranked the loss of riparian vegetation in the lower Sacramento River and Delta and San Joaquin River as being a very high threat to recovery of those species.

So, I think we've done that hard work or are in the process of doing that hard work, of making sure we're not focusing on everything all the time. We really all have to set priorities. We do have limited resources. But from NOAA Fisheries's perspective, we do care a lot about that remnant habitat, and I think we need to find a way to work with the Corps and work with the flood control district to repair the levee system in a way that takes that objective into account. And we have been doing that.

I also want to echo the comments from the gentleman from the State Reclamation Board that we've been working quite well on a local collaborative effort that DWR has been leading. We've got a streamlined consultation process with batches of consultations coming in. We are able to mitigate and look at some conservation measures that allow that

process to move forward. I think we need to build on those kind of experiences here regionally. And I hope that we can do that. I think there's certainly an opportunity to do that. Thank you.

Ron Stork: Hi, my name is Ron Stork. I've been on the conservation staff of Friends of the River for 20 years. I was just reflecting that I've been a member of the California Native Plant Society for 30 years. And the first environmental issue that I work with, with the Corps of Engineers, or not entirely with but associated with the Corps of Engineers, was a Corps program to clear cut large sections of the San Joaquin River riparian forest, which the Corps wisely eventually didn't do. The theme of this panel is to try to figure out where we're going to go from here, and I think it's useful to reflect on where we've been before we figure out where we're going. Clearly we have some conflicts between the expectations of flood control manuals, with regard to maintenance, of vegetation, in the way in which California rivers are treated. And environmental laws and expectations of the citizens of California and the country.

And to some degree, they stem from I think what most of us would regard as rather unfortunate flood control project designs that didn't really accommodate natural processes and protecting important natural resources. And so we're stuck with some difficult challenges. And at least as I've been watching the state and federal governments for the last 30 years, it's seemed to me that -- granted there's a lot of bruises that everybody's nursing, but the resources agencies and the flood control agencies, and for that matter, elected officials who provide public resources to engage in these kinds of projects have worked out an accommodation in California that we were not going to be clear-cutting the last remnants of riparian forests as we were trying to improve our flood control circumstances.

Needless to say, the Corps white paper hit California pretty hard. It seemed to be not consistent with the working arrangements that had

developed in California, and I particularly was hit pretty hard. And I talked to a lot of people and of course the question is, what's going on here? The straightforward answer is the Corps has standards and we're not complying with the standards, and therefore, the Corps needs to make notice of the standards. Well, of course, for those of us in California who have been working on this issue for the last 30 years, that's nothing new; we know that the O & M standards of the Corps are not reflective of environmental laws and expectations we have for our rivers. Surely the Corps must know this as well.

So, the question is, why did the Corps present this paper? And maybe it's as simple as, well, there are standards and we should follow standards, and it just came out of Washington without really thinking about the California circumstance. Clearly, with the number of people that we have here today, the California circumstance warrants some serious discussion, and I welcome the opportunity to participate in it. The question is, did the Corps do this to force us to do something different? Is the Corps saying to us that we need to reverse the environmental progress that we've made? Is the Corps saying to us, let's get on with the system reevaluation and reconstruct the flood control system in a way that minimizes these conflicts? I don't know the answer to that question, and very frankly, after listening to the discussion of the last two days I'm not so sure the Corps does either. But that's obviously something we need to get resolved.

It seems to me that the evidence for the new vegetation policy is pretty thin, and in the interim, with the bad flood control system that we have with limited options, it seems that the smart thing to do is continue to discuss how to live with bad flood control operation manuals and get along with each other pretty well. But in the long run, I think the dissonances in the system need to get resolved. And the comprehensive study, I see one former manager of the comprehensive study in the Corps now retired, needs to get -- he doesn't have to come back from retirement, but we need to get the state plan of flood control going again, a new

comprehensive plan that envisions a new way of doing business and a new way of getting a flood control system that works for the environment and for public safety.

And if we do that and we can manage to continue like we're doing in the last 20 or 30 years with the vegetation management policy that makes sense for California, I think we can all feel proud of what we've done. And I hope we don't spin out of control and do something else, because certainly that is possible.

Keith Swanson: We spent the last two days talking about public safety and public trusts, and I think we've had agreement that public safety is our first priority. But having said that, public trust is also important. We've got a legal obligation for both. I don't know how many of you are responsible for signing environmental compliance documents in your work, but I do that, and every time I'm hovering over a document ready to sign, I think about the personal liability associated with that. And it's pretty significant; you know, a violation of the Clean Water Act is something like 25 thousand dollars a day potential. So, these are serious issues; public safety is a serious issue. We definitely need to be serious about what we're talking about.

Certainly with this vegetation issue, we need to be careful about what we're doing, because we cannot afford to government fighting government, and I think in the '90s we say some of that, recently with our collaboration efforts we're starting to bridge some gaps and we do need to build on the success. So, this is really a time for leadership. We have bigger problems than vegetation; we've heard about our unengineered system with oversteepened levee sections, underseepage problems, and erosion problems. We need to look long-term, we need to be visionary, and we do need to reinitiate a comp study type evaluation. It needs to be a collaborative process to improve, correct, and restore the system, and we need to get a meeting of minds. And it's meeting of the minds of the state

of California, the local reclamation districts, the Corps of Engineers, the resource agencies, and - it was mentioned before - the public. We've got to get everybody on board because this has to be a stable situation; it can't be a four-legged chair with only two legs that are solid.

We also need to figure out how we leverage our limited funds. So, we need to look to our local partners and our federal partners to maximize the amount of money that we have to address our complex problems. We need to spend our money wisely. Sometimes that's going to be a redesign of the system, but also it's going to be about managing our existing system to the best of our abilities, and we certainly can do better. If you look in our flood control channels, we have acres and acres of star thistle and arundo, things like that, that could be managed much better. We have technical deficiencies; erosion, underseepage, stability encroachment.

Environmental enhancement; the suggestion was that we needed to tie to the species recovery plans. That's great, in fact, and I think if we do that it will make the process of getting our environmental permits necessary for our maintenance a little bit easier. We need improved inspection and maintenance across the board, and at the end of the day also, we need to have clear expectations of what our maintenance obligations are. We have O & M manuals and people will point to them and say, that is your obligation to meet those O & M standards. But we have a project that wasn't constructed to those standards, and we've never seriously enforced those standards. And now we have this vegetation policy and we need to get clarification and clarification quickly as far as where we're going with those. We need reasonable implementation of those.

We've got to evaluate the critical needs of our various partners and factor those into any future action. It needs to a sustainable system, and maintainers need permits in hand. That's from the resource agencies and it's from the Corps of engineers. We have a very difficult time getting through the 404 process periodically. Our routine maintenance; we need

to look at things like the SRA corridor that was discussed down at the summer water level. It seems like that might be an area of compromise. Now, if we go along and establish an SRA corridor, then we do need some safe harbor type protection so that we can do our routine maintenance.

We also need the ability to do our emergency repairs. If there's damage during a flood season and we identify it during the spring, we need to be able to get that repaired before the flood season the following year. And so we need an accelerated process so that that can happen. We also need necessary resources to complete the work. We have to realize that we do have limited funding. We need to fight for more stable funding, because based on the state side our funding has gone up and down. I know Mike Hardesty has said that the ability on the local level to raise funding is very limited. And then finally, we need the political fortitude to move forward when controversial issues arise, and one of those is going to be encroachment abatement. When you're going into somebody's backyard and telling them that they can't have a swimming pool or they've got to move their fence or their stairway has to go, we need to have the resolve to be able to force that issue.

Tim Washburn: I kind of like the Corps concept of talking about a regional variance. SAFCA, some of you know, issued it's own white papers of a slightly different bent than the Corps white paper a couple years ago, talking about what ought to be the framework for reducing flood risk, particularly in the lower Sacramento Valley, the portion of the Sacramento River Flood Control Project that probably contains 90 percent of the damageable property that's protected behind levees in our region. And we said, you know, this isn't that complicated.

There are four historic urban concentrations in this region: Sacramento, which is now growing north into the Natomas Basin; West Sacramento, which is now extending south into Southport; Marysville, which is now,

due to Yuba County activity, extending southward into Reclamation District 784 - otherwise known as Plumas Lake; and Yuba City, which isn't quite sure what it's doing but is likely to expand northward toward the town of Live Oak. And we said that the priority in flood risk reduction ought to be to provide these urban areas with a high level of flood protection, most likely by protecting the existing levee system they have with some allowance for adjustment of that levee system, as is occurring up in Plumas Lake with the setback of the north levee on the Bear River, and now potentially the setback of the east levee on the Feather River.

Setback opportunities also exist in the area of Yuba City, and as Stein indicated, in Natomas where, while it's an urbanizing basin, there is still quite a bit of ag land there and there is room for our creating an adjacent setback levee along about 18 miles of the east levee of the Sacramento River. West Sacramento is essentially a perimeter levee-enclosed area, but there is some room as they think about what to do with that perimeter levee system, for doing similar things as we have done in Natomas, Southport being a largely undeveloped area. That is priority number one for the state, the locals, and the Corps. Get those urban areas protected.

And we will, I believe, have some pretty solid direction on providing that urban standard flood protection - we call it "200-year flood protection" - it's actually a very conservative 200-year flood protection that we're talking about providing, because in Natomas, for example, it assumes no levee failures upstream. Two hundred-year flood, levees overtop upstream but they don't fail; we carry that water on downstream and then we put three feet of freeboard on top of that water surface elevation. If the levees did fail upstream, in a 500-year flood we've have about three feet on that surface elevation. So, we're providing a great deal of flood protection for these urban areas. That's a good thing, that should be our highest priority.

That's the context in which we ought to take up the veg issue. How does it fit into our program for reducing flood risk where we have 90 to 95 percent of our exposure? What I heard in this conference the last few days is, pretty simply put, in the areas where we have the greatest opportunity for collaboration down along the bank and berm of the levee and the lower reaches, in some cases, of the extended levee prism, we have a lot of opportunity for collaboration and SAFCA has experienced a great deal of it, and successfully so in reducing risk. We have the least problem with vegetation. Nobody's been able to say what really is the issue with vegetation down in that lower portion of the levee and on the berm, and Les showed that with his little circular diagram. I mean, there's not a lot of risk down there from a flood safety point of view, but there's a lot of opportunity for collaboration with the resource agencies there, and actually, in most cases, the vegetation's actually helping the flood system.

And as Dr. DeVries pointed out, we don't have the lack of channel capacity, the N-factor issue, I think was fairly persuasive on vegetation and the margins of the channel there is not an issue for conveyance. So, I would suggest that in our thinking about the variance plan we say, there is a space where we have a lot of room for collaboration until such time as somebody says or points out or develops the science to say, the flood risk there is unacceptable. Because everybody, at least that I heard, in this conference indicates that no, that's not a serious risk to flood safety in that zone, and yet it's probably the most valuable zone for our environmental values and our aesthetic values for the community.

On the other hand, in that upper reach of the water side of the levee and certainly as you get to the levee top and down the land slide, that's a different story. And as Keith pointed out, we've got serious problems there because we've allowed a lot of encroachment onto the land side toe of that levee. But we have some rich opportunities in the next five years to address those issues. And Natomas will be case one, because we've got horrible encroachments not only on the land side as we get down into the

urban core near the I-80 overcrossing in Natomas where we're going to run into subdivisions right up to the levee toe. We also have, of course, the water side encroachments along the Garden Highway that we're trying to address with our adjacent setback levee.

We would accomplish a great deal if in the next three to five years this group of people continued this dialogue and said, okay, what are we going to do practically, commonsensically, in these areas as our levees come forward for certification? There will be a stream of them coming forward -- Natomas, Plumas Lake, West Sacramento will all be coming forward to stand to the test of, have we handled this issue in a reasonable and acceptable way both immediately for the purposes of our certification and then going forward, what's going to be our plan. Because I think everybody's going to agree that you're not going to go in and take the judges' and lawyers' gates and fences down in a single swoop. You'll need time for that effort.

So, I suggest that we, as Stein suggested, we continue this dialogue, we focus on the idea of a regional variance. We will have any number of opportunities - rich, juicy opportunities - to decide what are we practically going to do, particularly with Keith's nettlesome problem of the encroachment on the land side, which we acknowledge are clearly a much greater flood safety issue than the habitat that we value down along the edge of the water. And we should take the opportunity during this next three to five-year period to resolve those issues as we work out this regional variance, and as we work with the state and the Corps, to say what's the long-term plan for the lower portion of the Sacramento River Floor Control project here, and put the vegetation policy - particularly in the rural areas where it's not so clear what we would do - into context.

Emir Macari: All right, folks. Thank you very much for your opening statements. The first question that we have up here on the monitors was sent to the panelists, and obviously has been addressed already. When a taxpayer

pays their taxes, they don't say, the federal government has this much, the state government has this much; they want their protection, they want their insurance, they want their services. So, knowing that in the collaborative process and government - not local, state or federal, but government united - it is critical to distinguish between the stated positions and the critical interests that underlie that position. Would our particular agencies think that should be perhaps the first and second steps that we should do in this particular process?

Ed Hecker: I think we've already talked about -- the first step is we need a plan. I think right now if you surveyed the agencies in terms of what is the plan - and Tim just talked about a three to five-year plan - I don't think anybody could sit here and articulate what that plan is right now. So, it's difficult to align federal, state and local agency actions if you don't have a common plan to address so that we can look at what the federal role is in executing that plan, what the state role, what the local role is; how are we going to resource it; what policies come to bear, and in fact, potentially what authorities do we need to effectively actualize that plan?

So, I think that's step number one. Given all the primers we've talked about in terms of national standard, public safety, environmental objectives, what is the plan - and Tim articulated a piece of that very well - for the Central Valley that we can all focus on. Once we decide what it is we need to do, what is our common objective, what level of protection are we trying to achieve, what are the other sub-objectives that we are trying to achieve, then we can look at the resource piece. So, I think those are the first two steps, but really I think the first step is the most critical. And that plan may have several phases; I think whatever we do needs to be sustainable for the long-term.

Emir Macari: What I'm going to ask is for folks, as they want to make a statement and certainly not just to agree, but present another perspective, just raise your hand and we'll go around like that.

Tim Washburn: Again, I don't want to say it's not -- it's somewhat complicated, but it's not that complicated, either! I mean, we have been at this since the flood of 1986. We had the American River Watershed Investigation, whose goal was to provide the Sacramento with a 200-year level flood protection minimum. We have finally, now, after 20 years sort of figured out how we get there, after some attempts at other approaches that some of us on the panel here didn't like so well. But, you know, we now have a more or less consensus plan for protecting Sacramento to a 200-year level; we should do it. There is more or less a consensus on how to protect Marysville and the Plymouth Lake area south of it, and it is being implemented now.

There is an emerging plan and it won't be a big mystery how to protect West Sacramento. And we did start on that one back in 1992, and in fact, everybody told them, you have 400-year flood protection, but now we know we didn't address underseepage and some other things. But we can certainly return to the scene in West Sacramento; I can guarantee you that it won't be a big difference than protecting the perimeter levee around them. Because I don't think it's so mysterious what we're doing, and if we concentrated -- I will admit, Yuba City/Live Oak after 20 years is still an unknown, despite working with the state and the Corps and everyone else, it is very difficult for them to come to the conclusion that they probably need to put a back levee south of Yuba City and protect the urban areas. That's a very tough choice for them.

But with the other three urban areas that contain the vast majority of the protectable urban property, we know where we're going. And we need the help of the Corps and the state to get there; the state is now going to chip in with their proposition money. We need to help with the Corps, and the Corps is a little ambiguous because we're outside of where we left off with some authorizations about America River Watershed because of new engineering standards. But it's not a big mystery, and if we focused on

getting those urban areas protected we would resolve the levee encroachment issues in the context of providing that 200-year level flood protection. And that would tell us a lot, where we may then go out into the larger areas of the Valley which are mostly rural and require, perhaps, some different solutions and ideas.

So, I'm proposing to the Corps and the state that we focus on these urban areas where the majority of our risk is, solve the vegetation issue in that context over the next three to five years, and during that time figure out where we go with the non-urban portion of the system beyond.

Mike Hardesty: I would offer the comment that planning would have been my first answer as well. As Ed has indicated, the plan is essential here, and as it pains me sometime, I have to agree with Tim, too. We have come to an accommodation, I think, between the urban and small rural community that a plan has to address all of those things and that it has to include a variety of components, which includes recognition of the habitat and vegetation values that levees possess. That's not something that we can just ignore.

But to reiterate the point that I made earlier -- and maybe I tried to just lay out two items, and that was public safety and finances; those are the two issues that I think all of look to as key issues to solving the flood control problem as it relates to levees. But this plan needs to have a statewide, comprehensive financial plan that goes along with it. We can't move down the road at all without that component in place early on so that all of the interests involved in the system have a reasonable expectation that they're going to get something out of the deal, out of the plan, ultimately.

The part where Tim and I tended to probably move slightly apart is when do you provide some level of protection for the non-urban area? I would suggest that it has to be at least in part concurrent with the improvements in the urban area, and that's not to discount the overarching need for a

high level of flood protection in urban areas; it's just that we don't have enough money on the table today, in the bond issues that we recently passed and the expectations that we might have or might have had from the federal government contributing vast amounts to continue to develop California's flood control system.

But if you expect the large population of California, particularly not in the flood protected areas, to support continued investment in flood control, it's going to have to have a fairly broad base of support from those folks both in the urban and in the rural areas of California. The last thing we can afford to do is fracture the coalition of the flood control interests into those who feel like they've got it made and those who feel like they got left behind.

Ed Hecker: The challenge is pretty laid out, and what I heard is concurrent. We've been talking urban versus rural agricultural; I think the plan that I'm hearing needs to address the entire system, both urban and rural, and then put priorities where the risk is highest. But that doesn't mean we just set aside the rural and agricultural areas; they need to be considered in the overall, comprehensive plan.

Maria Rea: I just want to concur with the idea of a comprehensive plan. We had some internal discussions before coming here, and I think we see that need, we know a lot of work's already been done, so hopefully we can build on that and not have it be too lengthy of a process. But I do also add the caution that as we're thinking about a plan which would hopefully satisfy a regional variance procedure for the Corps, we might also be thinking about upfront, what the regulatory assurances are, and what the legal mechanisms are that we need to meet. And that's not only Endangered Species Act, which we at Fish and Wildlife Services administer, but you've also heard that many legal mandates in California based on state law - SECA, CEQUA, some of the state water codes - so I think we need to think about that up front and be realistic about what it is we're building

and what kind of assurances will be contained therein, and their different options. And we would certainly be prepared to discuss those options.

And I guess the other thing I would like to add is, I guess because we are talking about something that will take at least a couple years, we also may need an interim fix for those sites that have already been assessed as failing those criteria. And we would suggest, perhaps, a very practical kind of solution with getting a technical team in the field; perhaps we can quickly summarize some of the science presented at this conference today, and charge that team with coming back with a set of recommendations for each of those sites. I hope there would be enough flexibility in the system to allow us to do that.

Emir Macari: Butch, given the controversy over this issue, what type of process and timeline do you think would be appropriate to achieve a solution, a viable solution? What would you like to see done, say, right away?

Butch Hodgkins: Well, let me ask you, the conversation up here slipped from a veg policy to the state plan of flood control just like that, which was a bit of a surprise to me; I thought it was a veg seminar. I'm going to tell you that, you know, I think the vegetation part of it should be addressable, and if people work in good faith we can come up with something that will result in significant improvements to the system but not totally devastating our riparian forests.

I think that there have to be provisions here for the early implementation projects. This is my view; I come from an urban area and that's where the risk is highest. And candidly, in my opinion, the reason those problems haven't been addressed better than they have is because the engineering community hasn't been capable of doing it. It's inexcusable for us to have gotten this far without addressing underseepage, folks, and I was a part of it, but Jesus, how do you do that? We need to get the urban areas to a reasonable level of flood protection without compromising what we're

going to do with the rest of this system. But this is a huge system, this is like telling the Corps, what's your system plan for the entire Mississippi in terms of level of protection, and when are you going to achieve it? And, do you have one? I'm asking. It's the same kind of thing. Is there one?

Ed Hecker: We've looked at it, and Mississippi is lower and upper, and clearly the lower system has one; the upper system is one that's being worked on.

Butch Hodgkins: And I think in many ways, that's where California is, the Central Valley is, and we can split the Central Valley further into the lower San Joaquin and lower Sacramento, and then the uppers. We're going to have to work with it that way, because if you try to get too broad and too comprehensive in your planning here and get away from more of a vision, you're going to run right into what the comprehensive study runs into, which is more concern of the kind you hear Mike expressing, which is somebody is going to get something and I am going to get stuck. And that's what leads to political gridlock, which we are really good at doing in this state.

Emir Macari: I'll come back to Ron, but Keith, a comparison of existing California code Title 23 and the Corps policy for vegetation on levees shows many similarities regarding vegetation standards or restrictions on the levees and the toe areas. Yet the state's current vegetation management practices don't appear to follow the state code. Why not? What are we doing there?

Keith Swanson: We have never seriously maintained our levees to any type of written standard that I can tell. I mean, we didn't build the projects to the standards, and we put some language in our O & M manuals that allowed some small vegetation on our levees when we had big vegetation on the levees. And so, collectively, it is the state's responsibility for the primary inspection, but the Corps of Engineers has followed up with their own. It's been a quality control, quality assurance type agreement, and so

everybody has been complicit in this. We haven't maintained our levees across the system to the standard; we've all stuck our head in the stand. We haven't considered it a major problem. We didn't consider it during design or maintenance.

Emir Macari: Ron, you mentioned that you had worked with the Corps removing trees with that part of an issue that you were working to try to follow code. Could you give us a little bit of information there?

Ron Stork: That is correct. The conclusions of the comprehensive study were that there's a fair number of flood control projects in the state with O & M manuals that require things that are inconsistent with state and federal environmental protection laws, community expectations, and the O & M budgets of most flood control agencies. And not only that, it puts you in a war against nature, and nature always comes back. The tree you cut down today will re-sprout and riparian forests are quite dynamic. So, the trick that a reconstruction and a flood control system should try to achieve is a system that doesn't require the expectation of whether it's achieved or not, but even the expectation that you have to fight a war against nature in order to achieve the proper functioning performance of your flood control system in areas where war against nature is contrary to public expectation and the budgets of agencies.

And that generally means you need to devote a bit more land to the flood control system, and I think that's to some degree the concept of the Corps' Vegetation Policy, that you have your riparian forests between the river and the levee, and on the levee we do something else on. Whereas in California we tried to squeeze everything, all of our flood control functions as well as our biological natural resources, into such a limited space that we find ourselves in some cognitive dissonance about what we can do, both in our written rules as well as the actual practices. And this conference has been an excellent opportunity to highlight that dissonance we have, and we need to find some opportunities to get beyond that and

have a system where our rules and our expectations and our practical abilities to achieve them are one and the same.

Emir Macari: Butch, do you have a general comment as well regarding the compliance issue, state Title 23?

Butch Hodgkins: I think it's important to understand that this is a system where SAFCA, in its area, spends maybe 25 to 40 thousand a mile on its levee maintenance programs. They're not all SAFCA; some of it's underlying districts. But we also have farther up in the Valley agricultural districts that spend 15 thousand dollars a year, because it's all the tax revenue they have, to maintain 11 miles of levee. So, there's that kind of disparity in the area of maintenance. And don't pick on Keith because he's got to get money out of the legislature, and they were taking it away from him -- and they've brought a lot of progress, I think, to this state's maintenance approach. And now the money's been restored, but it isn't like it's totally the Department of Water Resource's fault; it's the flood control agencies that have very limited resources. And so, maybe at some point you say, we can't continue to protect some of these area, and we draw away from it. That's what this is saying from the Corps' standpoint.

Emir Macari: Obviously, limited resources, this is a huge issue. If we had unlimited resources we would be able to do all sorts of different things. Ramsey was just mentioning resources awhile ago; we have our own problems at the University. However, if the white paper was to come about in draft - we want to stress the word draft in there, Ed mentioned it a little while ago and I wanted to make sure that we point it out again - there's a lot of questions regarding who would have to remove the vegetation, if they did not remove the vegetation, what are the consequences. People are saying, will there be fines, will I go to jail; others are saying, what if our community elects to take on the risk and liability, would they allow them to do their own issues.

And there's four questions regarding this same project, so I figured we should address it right now. There are folks saying, well, what do I go back and report to my commander and my Corps of Engineers district, that there are variances, that we should be applying for variances, that we should seek special consideration in our district? Why is California or Sacramento so special, why can't we also have these kinds of issues? So, perhaps you can address it, Ed, and then we can go down the line.

Ed Hecker: I guess I'll start by reiterating a point that was made in a previous panel, that the current standard that is articulated in the draft white paper allows for vegetation. We're dealing with the challenge in California where the system was designed and maintained or not maintained over along period of time outside that standard that has been promulgated in our regulations and as just mentioned, also in the state regulations. So, we're looking at the situation not to have a separate standard for California, and we're looking at a process and we already have a regional variance process in our current regulations that will provide the basis for applying for a regional variance.

What we're trying to address now is how do we look at the vegetation risk factor in context with the seven or eight risk factors that have to be addressed for system effectiveness, which is a very key aspect of the risk equation. And so, I think what my comments went to earlier is, if we're strictly dealing with the vegetation issue, the standard is clear -- you know, how you have the design section to comply with that standard is clear, and there may be other bases for regional variances but they would have to come in and make their case. We're strictly dealing with that vegetation standard piece.

Emir Macari: There are small districts already, and folks representing here, that took the white paper as Bible and are doing work right now. Should they stop, should they wait until a little more comprehensive discussion takes place, and how would that discussion then be available to the public? How

would that come through? Because one of the ideas in this conference is obviously to review the white paper, discuss it here, have a dialogue and see if the presenters can interject any additional information that would allow for a more robust white paper.

Ed Hecker: First of all, the white paper articulates a standard that has been in existence for some time. If you want to go back to last September when we rolled out the results of our initial inventory analysis with 122 levees of maintenance concern, with maintenance deficiencies - all based on an existing standard for which repeated inspections had noted serious deficiencies which had not been corrected - we acknowledged at that point that we had not sufficiently enforced that standard by implementing the public Law 8499, Rehabilitation Consequence, if you will. As a result of that, we added to that policy implementation the one-year maintenance deficiency correction period to give those sponsors for which we had not really enforced a policy an opportunity to meet that standard.

Again, behind all this is, although we're maybe using our regulatory tool, a clear interest in promoting public safety and reducing risk, what we've seen in a large number of those 122 initial levees of maintenance concern is significant work being done to address those deficiencies, understanding the true objective of the Corps in pointing them out, more success in getting resources from our legislators to address those deficiencies, and then within six months to a year, a significant improvement in the public safety posture of that structure. So, that's where we coming from. What we want to do, though, is take the opportunity to look at, since some of these standards have been articulated throughout these last two days are based on many years back of engineering observation, some very limited science, let's look ahead. Standards have evolved; if you want to map out the history of how standards in any area of engineering or other sciences have evolved over the past 100 years, and these standards will continue to evolve.

So, we're basing our current decisions on current standards; we'll be looking at those standards for future application, but certainly, the requirement right now is to follow the current standard.

Emir Macari: Okay. Perhaps we can hear from DWR and SAFCA, and then we come back to Fisheries, certainly very important in this issue.

Keith Swanson: Well, I'm really hoping that this conference will have at least some time period for discussion and an opportunity to evaluate what's been presented here, and I hope that is reflected in any policy. Because clearly, we have a pretty good history of collaboration here that is turning the corner from where we were in the '90s, and we don't want to lose that. And we don't want to be in a situation where we're pitted against the resource agencies, fighting for the last vestige of what were great riparian forests down the center of the Valley.

We also want to make sure that we're spending our money wisely; the points have been made that there is limited amount of money available right now. We have an opportunity to address what we think are the highest risk elements to a system that was never really engineered, and so we don't want to squander the money. We want to position ourselves for future bond acts, we want to work collaboratively with the Corps of Engineers to do a system evaluation. So, don't put us in a situation where we become adversaries over something that we've concluded, I think, is not on the highest level of risks that we're facing. And so, we understand from a policy perspective that you have to come up with something, and this policy has been on your books for 50-odd years out here in California, but you didn't build the system to the policy, we haven't been operating and maintaining it to the policy, so let's not fall on our sword.

Emir Macari: Okay, quick, and then Tim.

Ed Hecker: This give and take is exactly where I went to earlier in terms of, let's go to the system effectiveness plan, and now we're putting vegetation in a context with the other factors and we've got a plan that we're all working collaboratively on. But that plan is achieving a high level of public safety, so now we have a basis for developing our policy in context with a broader set of contributions being made at federal, state, and local level to an effective plan. So, that's what different as we apply. That's why I said earlier on that we're willing to consider policy flexibility, given a plan that addressed the system effectiveness, not just one factor. So, that's where we're willing to work --

Tim Washburn: To answer Butch, how we started with vegetation and go to talking about the system, you have to put this into context. To grab this piece, number eight on our risk chart, and put it up here and say that's the most important thing we've go to do is absurd. I think everybody agrees with that. It has to be put in context, and that's what we're trying to do. And I think we have the capacity to do that, very much so.

Maria Rea: I just want to go back to your question, which I think was a good one. I took part of the context of that being, if you're a reclamation board responsible for a levee that's gotten one of these citations, what do you do? And I don't have a great answer for you except for please talk to us. There are legal vulnerabilities on all sides here, and I don't want anyone to end up in a situation of unknowingly harming, disturbing some really critical habitat from a Fisheries perspective, and having us tell you that after the fact. That's not a position you want to be in or that we want you to be in.

So, let's again use the consultation processes we have in place. We have a Section 7 [unintelligible] endangered species that we have, consultation procedures in place; I think we can use those effectively. If there's a time-critical nature to this, which I think needs a little bit more discussion, we

are again willing to put some folks in the field right away and try to get some good answers on this.

Keith Swanson: On the particular that are on Corps' list, those really are classic examples of poorly maintained districts. A lot of those -- we have channels that are on there, we haven't been in those channels in 20 years. Some of them are chock-full of arundo, and everybody's in agreement that that needs to come out. And so there's a lot of work that can be done that the resource agencies are going to be supportive. We've worked with Gary Hobgood for years and years and years about developing maintenance plans that balanced the environment and met our public safety needs. We left corridors along low-flow channels that still allowed us to convey the design flows. We thinned out trees; we didn't take every tree there, but we maybe took three out of five or something like that. We left habitat there. We take trees, we prune them up so you can see underneath. There are a lot of things that can be done that aren't catastrophic to the environment.

Ed Hecker: Two quick comments. One thing that impresses us is the strong regional collaborative that's in place here. Some of our team and myself met with them the Friday after the levee conference at the end of July, and clearly, California has an advantage with the collaboration and the partnership already taking place. Our intention, certainly, as we move forward is to continue to use that vehicle for complete cooperation and information-sharing in terms of what objectives we're trying to achieve, what our options are; we will respect Corps compliance with environmental law, that's there at all times, and what the options are in that respect.

I think we heard some options from even the engineering standpoint that we could continue to pursue that may give us the ability to have that compatible use between the riparian habitat on the riverside and protecting the land slide. I think the common ground diagram that Les Harder put up shows a good starting point in that respect.

Mike Hardesty: The question started out with the activities or the perceptions of local agencies. I just want to state this, with the possible exception of a single agency, I don't think any local levee maintaining agency took any precipitous action in regard to this; in fact, most of the agencies that we have contact with first impression of this guideline, which was out about a year ago, was, oh, that can't be right, they don't really mean that. It's not possible to do those things, so it's not likely that that's what the Corps intended. After our first one or two discussions with the Corps, we kind of came away with the conclusion, well, maybe they really did mean to say that, but we really don't mean to do that -- at least not in the short-term.

There has been good collaboration among the federal government and state and local government agencies to date; progress could be faster, and that's the big issue here. The issue, really, is timing. As long as we have a deadline -- and some of these agencies have out only until next fall in which to pull themselves off this list of endangered agencies for PLA 8499 assistance; that gives us a fairly short window in which to do an awful lot of things. Now, we participated, as you've heard about the Flood Collaborative process that's been ongoing for several years; that has been a good start, I think it has achieved a great deal with regard to the January '06 flood repairs and the critical sites that came out of that.

But it hasn't yet, I think, come to the point at which we have a solution to all these things, and I think as locals, we're certainly looking to the state as the "local sponsor of this project" to sort of step up and be forceful on our behalf. We are there at the table as well and we'll look forward to these things. And unfortunately I don't see us getting there as soon as is necessary with the current deadlines that we're faced with.

Emir Macari: Now, to a subject that is dear to my heart, education and research. The first part of it is to you, Mike. How can people convey the positive attributes of vegetation for levee stability to the Reclamation District

employees? How can we spread the word; basically, how do we educate our work force out there on the various issues? What sort of vegetation is desirable, what sort is not desirable, where the vegetation is good, how can we go about doing that -- and by the way, RAMCC, our budgets could increase if we do all this training.

Mike Hardesty: I don't want to disappoint you here, but I don't think that's a difficult task at all. As employees and operatives of the agencies who do this maintenance, we have to establish a work plan. We, in large part, know what we're doing in terms of affecting repairs and maintenance on levees. It's no less difficult than dealing with the Endangered Species Act, when you deal with those plants and animals as well, it's simply a matter of setting the local priorities as to what you do and training your people to recognize what those things are they need to preserve.

The bigger question for us, though, is what is appropriate? As a matter of fact, maybe it is a bit more difficult to deal with trees on levees because now you have to make a judgment as to whether or not that tree actually belongs there; it's not on an endangered species list where you can look at a picture and say, gee, we better leave that one alone. But somebody - and presumably this is part of the plan of flood control that we're talking about - we have to have a mechanism by which we understand the expectations. I think it's harder -- the bigger issue is getting enough folks around the table to decide what the ultimate picture of California flood control is going to look like in the future. Once that's decided, I think the rest of it's pretty mechanical.

Emir Macari: Okay. Moving into the other aspect of education, the research, we have seen that there are a number of uncertainties; people that say, no, that's not true, we heard about the roots expanding or collapsing as they rot. Given these uncertainties, is it possible to develop test project? I think it was proposed in one of the earlier panels, would most agree that more research is required to determine appropriate use of vegetation to improve

levee function? And these are four questions that are very similar, so the audience is very interested in these concerns.

Research requires time and resources; anybody care to address that question? Don't jump all at once.

Butch Hodgkins: I think a lot of these questions, it's been my experience, we tend to go over and over. We think we have it resolved and then five years later we find ourselves arguing about it. So, I think the uncertainties here, for me, were primarily the issue of do roots lead to seepage? Because if they do, that's a real threat to the levees and we ought to know that. If they don't, we ought to know that, too. That's one thing that I think would be worth moving forward and trying to set up a program to understand. It sounds like great work for Vicksburg. And I think, you know, the states would help and maybe some of the local districts would help.

So, I think that's an area where we need research, because we don't know the answer. The treethrow, those things it sounds like we actually know quite a bit about and we need to get a program in place that gets specific about when you have to worry about treethrow and what species and how big the tree should be and all of those kinds of things, but I think you could move forward and do those kinds of things. So, those are a couple of areas from a vegetation standpoint, [where I think one way you can make progress without a lot of research. Maybe a little research is justified] to be sure we know what the answer is. Beyond that, I think the other thing to remember is as we go forward with the plan or vision for the future, this is not a static business, flood control. Engineers don't know everything, even though sometimes we think we do. Standards charge. I mean, I just watched a program about bridges across the country. That's the way this needs to be done, and I hope in the state's plan, we can figure out a way to dedicate some portion of the state staff and budget to doing that kind of work in the long term. That's critical.

Emir Macari: [Ron.]

Ron Stork: I'll put on my botanist's hat, and also I've hung around with a lot of engineers for the last 30 years, so I'll pretend like I'm an engineer too. I think clearly there's some research questions that would be nice to have some answers to, and the previous panels and speakers have discussed them. The question is who can do them and what kind of resources they can bring to the table, and how relevant they are to the individual regional experiences. I think it would be a good idea for both the Corps and for DWR to ask that question more directly amongst itself internally and of the academic community to try and get a handle on what kind of research questions are important to understand the answers to.

And one reason why -- the Corps certainly has a lot of resources countrywide, but one reason why I mention DWR is in part because I am a botanist and I know that a willow species in Mississippi is not the same willow species as out here. Botanists know a lot about soils, too, and soils vary throughout the country. To some degree, I think some of the lessons learned in other parts of the country are not transferable. So, that's another big challenge. So, DWR and I think the universities in California could work on that, on some of those issues. I think one of the kind of intriguing things that we heard from our friend from Germany was that in many circumstances, they're less concerned about the engineering reliability of levies with vegetation on it if there are slurry walls in them.

And certainly slurry walls have been poured in the urban areas in this part of the world in the last 10 or 15 years quite extensively. I think that would be an interesting research project, to figure out what kind of augmentation, [to levee] strength, not just seepage [pass but] levee strength, resistance to rodent burrowing, piping from roots slurry walls can afford. And whether or not different mixtures are better for certain purposes. So, I think that there's a lot of research that could be done to ask some intriguing questions. And when you think about the amount of work

we spend on medical research, which I think is a good thing, and the amount of money we spend on research in flood control projects, I suspect there's a lot more done in medical research. And sometimes we lose whole American cities, with a lot of people dying, and enormous community disruption because we didn't have the answers to some questions that we needed to have the answers to.

Emir Macari: Well, certainly a follow up to this meeting would be to create a research needs list, and that would be essential. I think something that we can come up out of the conference as deliverable should be one of those things. Let me move to setbacks because we have five questions regarding setbacks, and they come from Corps of Engineers employees as well as DWR and Sacramento River folks. So, given the historical opposition to setback levees, are setbacks now a viable alternative? Obviously the issue of resources -- can we go and buy all those $5 million homes in order to set back levees -- comes into play. But this is a big issue that seems to have a lot of interest. So, Tim?

Tim Washburn: I'm just going to repeat what Stein said earlier. I mean, Sacramento, which has 60 percent of the 90 to 95 percent of the damageable property has virtually -- very few -- I mean, we've identified one possible significant setback opportunity in the upper reach of Natomis, which really, from the economics and the benefits that you gain from it, really isn't a particularly attractive alternative. We have mentioned the idea of the adjacent setback levee. That is building the levee adjacent to the east levee of the Sacramento River because it's basically ag land and we've got a chance to do that. As he indicated, or maybe Les did, that's costing us about $15 million a mile to create an 18-mile setback levee with under seepage remediation. Okay?

Getting the material to build that setback levee is, as you might imagine, quite a challenge. It's about 4 million cubic yards of material that we need to deliver and build that levee. If there weren't ag lands present in the

area, and in this case we're happy -- ag lands owned by Sacramento County at the airport, we've got a source of [borrow] material that may be feasible. That is not feasible anywhere else in Sacramento. Every one of our other urban levees is developed up to the land side toe. Even rebuilding those levees would be an enormous challenge to bring the amount of material you'd have to bring in to tear down and rebuild an urban levee -- it would be an unbelievable challenge. Now, there may be opportunities, as we've indicated, where the urban development is extending down into formally agricultural areas like Natomis.

That is present up in RD-784, south of Marysville. And two setback levees are being built up there, one north of the Bear River and, we think, one east of the Feather River. That's also possible in Yuba City, which has extensive areas of ag lands north of Yuba City between Yuba City and Live Oak, a corridor that they likely are going to want to protect. And West Sac has Natomis-type opportunities down in the Southport area where if not a setback, you could at least think about an adjacent setback levee perhaps along the Sacramento River that would give them a greater amount of flexibility in managing that corridor.

But in our four key urban areas, and I've just named them, it's relatively limited opportunities. The ag areas have great opportunities if somebody can justify spending that kind of money setting back a rural ag levee that protects basically agricultural land. That's a lot of money to spend. Now, if there were environmental benefits that could be captured with it, or conveyance benefits -- we've got a lot of studies that have been done on setting back levees. Viola bypass that might produce multiples benefits for habitat and for conveyance through the system. That may be possible, but the point is, you will spend a lot of money, and the question becomes who spends it and will be able to justify it? The Corps would have a hard time justifying it under their current theories of cost/benefit, and the state would have a hard time justifying the diversion of those kind of monies if it meant taking it away from the urban areas and setting back levees in the

rural areas. So, it's out there. It's possible. Somebody has to say it's worth the investment and expenditure.

Emir Macari: Thank you. Keith, you have a comment on this?

Keith Swanson: Yeah, just a quick comment. I think to make it feasible in the rural areas, you do have to convince the folks that are up in those areas that it's a benefit to society. And I think you're going to have to tie it to some bigger program. You're going to have to tie it to the species recovery or something like that, overall system management.

Emir Macari: But certainly coming with a united front of federal, state, and local governments making these statements brings a little bit more power to the need or perhaps a little bit more urgency to the need to --

Male Voice: Talk is cheap.

Emir Macari: I know it is. Yeah. So, okay, now, would it be possible for local sponsors to obtain safe harbor agreements for vegetation removal but then restoration of native species endemic to the local riparian zone? I hadn't heard anything about that in the conference other than removal, but how about restoration of native species?

Tim Washburn: A comment on that. I would say -- and it's our intention to develop a program where we -- you saw the earlier graphs that were presented by Ken Rood and Ed Wallace from NHC showing the remaining berms that we have on the urbanized portion of the Sacramento River east levy. Very thin in the Pocket area, somewhat wider in the Natomis area. Our intention is to preserve a substantial portion of those berms. We don't benefit from allowing those berms to disappear. And those are areas where we agree you can, without compromises or risk to public safety, establish or reestablish riparian forest, and we've done it and done it

successfully. So, if you have problem trees in your levee section, move them down to your bank and fortify your berm would be our suggestion.

Emir Macari: Ed, any comment about that? [Oh, Keith, okay?]

Keith Swanson: I'd just like to say that if collectively we're going to come up with a common management strategy, we're going to have to protect each other's critical needs. And from a maintenance perspective, our critical need is to operate and maintain that levy to whatever Corps standard we agree to. And we cannot be penalized by successful implementation of revegetation and attraction of endangered species. If that is an outcome of restoration work, then you're not going to get a lot of maintainers wanting to join the program. So, some type of safe harbor agreement will have to be built into an overall strategy.

Ron Stork: These discussions have been part of deliberations in the legislature as well. Obviously the legislature has nothing to do with the federal Endangered Species Act or federal law, but they do have something to do with state law. The observation that environmental groups have made is it's really important for those discussions to occur in the context of real recovery for endangered species. Tim is telling you about the challenges that it takes to get a setback levee, but if we're really going to redesign the flood control system to perform better, to have a longer future, and to meet habitat requirements for important species, including endangered species, we have to do a lot better than having a system where we have hovering on the edge of extinction. We need to recover species. And in that context, safe harbor agreements make a lot of sense. In the context of keeping these species on the edge of extinction, they don't, to be blunt.

Emir Macari: Okay. Maria and Butch? Ladies first.

Maria Rea: Thank you. Again, I think this goes to the idea of a comprehensive plan, and if we had such a comprehensive plan, if there's a willingness to do

that, then I think we can have the broader set of discussions on setbacks, on offsets, on really creating some conservation or recovery areas. I think that would [nest] well with the concepts that we're discussing internally with our recovery plan. I agree that's the right context. And I want to also just note that our recovery plan, I hope, will be an overall blueprint, but it doesn't mean that we're going to be going out and doing all these actions that obviously will have to rely on actions by the state and others.

So, if there's a willingness to do more of a comprehensive flood management plan, dealing with the vegetation issue, but also the other issues we're talking about, then I think that could nest very well within a recovery context and also allow us to engage in some of the legal assurances, safe harbor or other types of legal assurances that folks want. I agree there have to be incentives from a landowner perspective and from a regulated state entity perspective or local entity perspective and if we really saw a commitment to planning, I think we'd be willing to put the time in to explore what the right ways to create those incentives would be.

Emir Macari: Butch?

Butch Hodgkins: I think the assurances, the safe harbor, are critical because there's a strong concern about the potential of doing restoration work and then finding out you can't come in and do the maintenance you need to do on your flood control systems. So, that's very clear. But I think also -- it hasn't been mentioned here, but in an overall state plan, I think there are some significant opportunities in our bypasses to do restoration in a way that is much more comfortable from a flood control standpoint and would encourage people to think about incorporating into a long-term vision or the state's plan of flood protection.

Emir Macari: Mike?

Mike Hardesty: The concept of safe harbor, unfortunately, at a local level doesn't get well received by either individuals in the agricultural community and, by way of that, it certainly transmits that feeling to board of directors of reclamation and levee maintenance districts. It's a difficult concept, to convince folks that this is something that you actually ought to look forward to as part of the solution. Having said that -- we keep coming back to the concept that what we need is a broader plan for the California flood control system. When we started this whole thing at some point, it was called the Sacramento River Flood Control Project. As we went along, we sort of bifurcated it into little hydraulic segments and began to look at it in that way.

We've proposed, as the Association of Flood Control Agencies, the concept that we need to go back and look at it and start to behave as if it was a unified system, and that it all fits together into a functioning project. Not little pieces of a project, but one big project. And that is the only way, I think, that local entities actually come to the table with the understanding that you can make changes to the system that serve everybody's benefit and can, in some way, at the same time, deliver on the promise that you got whenever you came into the system. In our case, it was many years ago. Five, six decades ago, on our case, but we're not atypical. There's a lot of agencies who came in with a completely different time -- a completely different understanding, and we do push back on the current circumstance that we find ourselves in.

But having said that, if we could start to look at the system as, again, a plan that extends the majority of the length of the Sacramento River, down into the Delta, there are opportunities that we can take on. Butch mentions the bypass. That's certainly an area we're very concerned about, in terms of Viola bypass, anyway. There are opportunities there, but we're very reluctant to sort of put them on the table without some corresponding benefit from that. And we only see that coming when we start to behave as if we have a unified plan where everybody has a stake in the outcome.

We don't see that today. And the concept of having a statewide or a project-wide HCP or something like it might be a step that needs to be taken and something that we have put on the table as being something we would like, we support as agencies.

Not that everybody will come onboard from the local level, but I think enough would to make it palatable. Somebody's comment, I believe it might have been yours, that if the local, the state, and the fed all come to the individual farmer and say have I got a deal for you, I think you can imagine what the response is going to be. The government's at the front door, and they're here to help me -- I don't think so. That's the response you're going to get. But if it's the local interest, the local flood control agencies that are there advancing things, projects, efforts, that benefit the local flood control agencies, then I think you have a reasonable chance of at least being heard. I don't think we have that in today's system. I think we feel far too balkanized in the system, far too left out on our own at this level, and we think a lot of these actions have to be taken at the state level.

Emir Macari: Yeah, certainly that's one of the big purposes behind this type of symposium, to bring everybody to the table to discuss -- if nothing else, we've answered one big question, at least on the surface. The old Rodney King's question: can't we all just get along? And it seems like on the surface that seems to be the prevalent word. Now, tomorrow, a group of you will be going to a closed-door session. My question would be what sort of philosophy would you be taking, so people can understand and can go back to their districts, to their agencies and say, look, this is what happened in the conference, but this is about to happen, as well, behind closed doors. What is the philosophy that's going to be prevailing -- and I don't know the names and the representatives that are going to be in these discussions, but perhaps several of the panel members will be there. Can you tell us a little bit about where you would want to have these discussions going, and perhaps start with Ed?

Ed Hecker: The concept, going into tomorrow, is to get a small group of representatives from the primary agencies and our sponsored and key players moving forward with many of the concepts that we talked about yesterday and today. It is in fact a continuation, if you will, the dialogue that we're having right at this table right now and will continue with the closing remarks. But [got to shape this a little bit] -- we had little opportunity in these panels to really get down to nitty-gritty details. We've heard a number of comments that need to be considered.

So, we want to get this into some definitive next steps that we can work on together. It will be provided to the community at large. Maybe a small group, for the sake of getting a few things done and mapped out, but then shared, I think one of the concepts [at least we have in the Corps] I think everybody shares is that throughout this process, it will be open, clear-cut communication with the entire stakeholder community. Everybody's who's here will be able to understand what the way ahead is, what our options are, what we're exploring -- not just the core but all of the partner agencies.

And it really -- just that opportunity -- the comment that was made in the last panel I think was a good one, that too often we come together like this and share some great ideas, have some concepts, maybe some next steps, then we go back to the office, and our email and challenges that have built up since we were gone capture us and we lose some momentum. So, tomorrow we make sure we capture the momentum coming out of today and come up with some actional steps that we all agree to.

Emir Macari: Great. Do we have a comment regarding that, just in closing, from state or local? Regarding discussions tomorrow?

Keith Swanson: Well, I think continuation of collaboration, without [addressing our public safety, our public trust issues], this idea of long-term planning necessary, we can't lose track of that, and in short term, we've got to be real careful what we do, how we move forward. We certainly don't want to lose any momentum that we've gained over the last couple years with our collaborative, through this conference, discussions we have through our historical partnership with federal government. We don't want to lose that.

Emir Macari: Butch, you have a . . .

Butch Hodgkins: I guess I would encourage the people who were there to begin by sort of listing out what are your most important concerns, because I think this discussion has turned from a discussion of vegetation into a discussion of how are we going to do a comprehensive flood control plan for the state? And maybe that should have been obvious that that was the real issue when the white paper came out, but it wasn't. So, let me encourage you folks as you go in and try and collaborate to think seriously about what your real concerns are and then try to sort through those in a way that makes sense and you can come back to us and tell us what the big issues are.

Tim Washburn: I'm just going to reinforce what Butch just said. Let's make sure that where we're going with what I hope will be a regional variance is designed to reinforce the boarder risk management program that we're developing here, that it doesn't become a distraction or a hindrance to our effort to tackle our principle risk management issues, which, I think everyone is agreed, veg is not at the top of that list. It tends to be toward the bottom of the list. So, don't let the bottom of the list frustrate our effort to deal with the issues at the top.

Emir Macari: All right. With that, I want to thank all the panelists for their comments I think it was a very, very successful panel. It brings us to a closer

understanding of the challenges that each agency, each group at different levels has. So, please, let's thank the panel.