

Emergency Management of Mass Animal Mortality

A Science and Policy Workshop for Mass Carcass Management in Texas

Workshop Results

National Center for Foreign Animal and Zoonotic Disease Defense

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TAES – Texas Agricultural Experiment Station

USDA – United States Department of Agriculture

TAMU – Texas A&M University

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TCE – Texas Cooperative Extension

Release Date: May, 2007

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INTRODUCTION

The Emergency Management of Mass Animal Mortality Workshop held in Austin, TX November 2006 built on the experiences of the National Center for Foreign Animal and Zoonotic Disease Defense's (FAZD) California Carcass Management Conference held in 2004 and conferences held in other states. The workshop focused on the science, policy and environmental impacts of proper mass mortality disposal following natural, accidental, or man-made disasters affecting the beef, dairy, swine, sheep, equine, goat and poultry industry. The purpose of the state-wide workshop was to test a model facilitating effective collaboration leading to future incident response planning for the confident disposal of mass animal mortalities. The purpose was accomplished by engaging major livestock and poultry industry stakeholders, regulators, policy makers and scientists in a dialogue of current and future best practices in plenary sessions, keynote addresses and small workgroups identifying issues and prioritizing science and policy actions based on enterprise type.

The FAZD invited representative stakeholders from federal and state regulatory and environmental agencies; city, county and state government and emergency management; university and private scientific communities; livestock and poultry industries; and commodity organizations to participate and attracted 85 stakeholders.

WORKSHOP OBJECTIVES

Objective 1: Engage major livestock and poultry industry stakeholders, health and environmental regulators, policy makers and scientists to review current science and policy and identify future best practices for proper disposal of mass animal mortality.

Objective 2: Beef dairy, swine, sheep, goat and poultry producers, regulators, and emergency management officials develop relationships that will lead to planning together to confidently dispose of mass animal mortality in the event of a natural, accidental, or man-made disaster.

WORKSHOP DELIVERABLES

1. Initiate an inventory of interacting policies of the different agencies that may contribute to uncertainty, confusion, or pose insurmountable obstacles to efficient and timely carcass management.
2. Review and update producer guidance based on enterprise type of: who to call; disposal options; and consequences of each option.
3. To prepare stakeholders to communicate with the public and respond to public concerns.

WORKSHOP AGENDA

DAY 1: Monday November 13

8:00 – 10:00am Workshop Facilitator Training

9:00 – 10:00am Registration Desk Open

10:00 – 12:15pm Plenary Session

- Welcome: Dr. Neville Clarke, Director, National Center for Foreign Animal and Zoonotic Disease Defense, Texas A&M University
Dr. Don Klingborg, National Center for Foreign Animal and Zoonotic Disease Defense, University of California, Davis

- Deliverables for the Breakout Groups. Dr. Andy Vestal, Professor and Extension Specialist and Co-Chair for Emergency Management Steering Committee, TCE
- Mass Mortality Disposal Experiences. Dr. Dee Ellis, Assistant State Veterinarian and Director of Animal Health and Emergency Management Programs TAHC
- Economic and Environmental Considerations in Carcass Management. Dr. Bruce McCarl, Regents Professor of Agricultural Economics, TAES
- Disposal Methods. Dr. Saqib Mukhtar, Associate Professor and Extension Agricultural Engineer, TCE
- Composting vs. Burial Methods. Dr. Tom Glanville, Professor of Agricultural and Bio-systems Engineering, ISU
- Mass Animal Disposal: Contractor Perspectives. Mr. Ronnie Jordan, Vice President, Phillips & Jordan, Inc.

12:15 – 1:00pm Networking Lunch

1:00 – 3:00pm Plenary Session (continued)

- Regulatory Agency Panel: Current agency roles, policies and procedures
 - TAHC - Dr. Dee Ellis
 - TCEQ - Mr. Eddy Vance, Air and Waste Section Manager
 - DSHS - Dr. Tom Sidwa – Manager, Zoonosis Control Branch
 - DSHS - Dr. Ed Maldonado – Asst. Coordinator, Disaster Mental Health Services
 - USDA/APHIS - Dr. Bethany O’Brien, Senior Staff Veterinarian for the National Center for Animal Health Emergency Management

3:00 – 3:30pm Break

3:30 – 5:30pm Breakout Session 1:

Deliverable #1: Initiate an inventory of interacting policies of the different agencies that may contribute to uncertainty, confusion, or pose insurmountable obstacles to efficient and timely carcass management.

5:30 – 6:00pm Social Networking

6:00 – 7:00pm Dinner

DAY 2: Tuesday, November 14

7:00 – 8:00am Registration desk open

8:00 – 8:45am Reconvene - 1st Deliverable Breakout Sessions
Facilitators report on Deliverable #1 within Small Group

8:45 – 9:45am Breakout Session 2
Deliverable #2: Review and update guidance for producers; who to call; disposal options; consequences of each option; based on enterprise type.

9:45 – 10:15pm Coffee Break

10:15 – 11:00am Reconvene – 2nd Deliverable Breakout Sessions
Facilitators report on Deliverable #2 within Small Group

11:00 – 12:00pm General Session
- Small Groups Report Findings/Recommendations for Deliverable #1 and #2

12:00 – 1:00pm Networking Lunch

1:00 – 2:00pm Breakout Session 3
Deliverable #3: To prepare public information and respond to public concerns each small workgroup is asked to 1) create a list of concerns the public may have and 2) craft messages to address these public concerns.

2:00 – 2:30pm Facilitators report on Deliverable #3 within Small Group

2:30 – 3:00pm Break

3:00 – 4:00pm General Session - Final Addresses
Dr. Bethany O’Brien – USDA/APHIS
“Overview of Gaps in Texas’ Policy, Planning, and Science.”
Mr. Kelly Cook - Homeland Security Coordinator for TCEQ:
“What Can We Do Together to Plan and Prepare?”

WORKSHOP RESULTS

Eighty-five participants attended the workshop. Of the attendees, seven were facilitators and 10 were speakers. Forty-five participants indicated beef as their species of interest, eight indicated poultry, four indicated sheep, one indicated equine, four indicated swine, and one did not declare a species of interest.

Forty-two participants completed the post-workshop evaluation instrument. Of those 42 participants, 28.6% ($N = 12$) indicated they were affiliated with a state government regulatory agency, 19% ($N = 8$) were affiliated with state government education agencies, 11.9% ($N = 5$) were affiliated with state government service agencies, 9.5% ($N = 4$) were affiliated with city/county government service agencies, 7.1% each were affiliated with Federal government service agency ($N = 3$), federal government regulatory agency ($N = 3$), and city/county government regulatory agency ($N = 3$). Of participants from industry, 4.8% ($N = 2$) were affiliated with an animal industry private enterprise, and 2.4% ($N = 1$) were associated with an animal industry organization (Table 1).

Table 1
Participant Affiliation (N = 42)

Affiliations	<i>f</i>	Percent
State Government - Regulatory	12	28.6
State Government - Education	8	19.0
State Government - Service	5	11.9
City/County Government - Service	4	9.5
Federal Government - Regulatory	3	7.1
Federal Government - Service	3	7.1
City/County Government - Regulatory	3	7.1
Animal Industry - Private Enterprise	2	4.8
Animal Industry - Organization	1	2.4

Deliverable #1: Results

Initiate an inventory of interacting policies of the different agencies that may contribute to uncertainty, confusion, or pose insurmountable obstacles to efficient and timely carcass management.

Small working groups using the nominal group process adapted from Iowa State University Extension's *Extension to Communities: Tips for Nominal Group Process* <http://www.extension.iastate.edu/communities/tools/decisions/nominal.html> (2001) prioritized the top five issues contributing to uncertainty, confusion, or posing insurmountable obstacles to efficient and timely mass carcass management (Table 2).

Table 2

Ranking of Top Five Issues Identified in Deliverable One Break-out Sessions by Specie Group.

Rank	Beef CAFO	Equine, Swine, & Sheep	Poultry
1	Jurisdiction (addressed in the State of Texas Emergency Management Plan Annex O)	Jurisdiction (addressed in the State of Texas Emergency Management Plan Annex O)	Financial (addressed in the State of Texas Emergency Management Plan Annexes O & J)
2	Policy (addressed in the State of Texas Emergency Management Plan Annex O)	Financial (addressed in the State of Texas Emergency Management Plan Annexes O & J)	Jurisdiction? (addressed in the State of Texas Emergency Management Plan Annex O)
3	Planning (addressed in the State of Texas Emergency Management Plan Annex O)	Policy (addressed in the State of Texas Emergency Management Plan Annex O)	Policy (addressed in the State of Texas Emergency Management Plan Annex O)
4	Financial (addressed in the State of Texas Emergency Management Plan Annexes O & J)	Planning (addressed in the State of Texas Emergency Management Plan Annex O)	Media/Outreach (addressed in the State of Texas Emergency Management Plan Annexes O & I)
5	Communication (addressed in the State of Texas Emergency Management Plan Annexes O & I)	Site Selection (addressed in the State of Texas Emergency Management Plan Annex O)	Transportation (addressed in the State of Texas Emergency Management Plan Annexes O & S)

State of Texas Emergency Management Plans:

Annex I *Public Information* ftp://ftp.txdps.state.tx.us/dem/plan_state/state_annex_i.pdf

Annex J *Recovery* ftp://ftp.txdps.state.tx.us/dem/plan_state/state_annex_j.pdf

Annex O *Plant and Animal Emergencies* http://www.tahc.state.tx.us/emergency/State_FEAD_Plan_8-23-04.pdf

Annex S *Transportation* ftp://ftp.txdps.state.tx.us/dem/plan_state/state_annex_s.pdf

Deliverable #2: Results

Review and update producer guidance based on enterprise type of: who to call; disposal options; and consequences of each option.

Using an existing carcass management guidance document *Disposal of Domestic or Exotic Livestock Carcasses RG-419* <http://www.tceq.state.tx.us/files/rg-419.pdf> 4006417.pdf from TCEQ for the small scale disposal of farm or ranch animals as a starting point, the small working groups used SWOT analysis to identify important elements for consideration and inclusion when developing carcass management guidelines for producers. Synthesis of the findings from the five break-out groups indicated that a good document should:

- Be species specific
- Be clear, concise, and short.
 - Q&A format is simple and easily understandable.
 - One page format ideal
- Include contact information for organizations
 - Local contacts
 - State and Federal Contacts
 - Phone numbers
 - Websites
 - Be a joint publication.
 - All entities listed
 - Include contact numbers
- Clearly cite regulations
 - Include practical synopsis of rules
 - Not refer reader to other documents
 - If refer, list specific directions to find resources
- Lay out the responsibility
 - Describe producer property rights
 - Describe liability issues
 - Owner/operators check local ordinances of cities and counties
 - When depopulation occurs under disease eradication authority
- Provide general information on procedures
- List disposal options
 - Include guidelines
 - Include decision tree for choosing option
 - Include alternatives for burn-ban situations
- Define terms used in document. (Clarification)
- Should not contradict itself
 - Information and procedures should be consistent
- Address regional differences
- Disease versus disaster issues
- Address deed recordation issues
- Be widely distributed and available
 - Distribute to County Judges, County Animal Issues Committees, Emergency Management Coordinators, producers, equipment operators, etc.
- Be bilingual
- List specifically to whom document applies
- Contain section encouraging producers to develop emergency management plan prior to incidents
- Have an accompanying document
 - Deals with emergency/disaster situations
 - More detailed guidelines on “How to” burn, bury, compost, etc.
 - Decision tree document for determining appropriate disposal method
- Not include or need a disclaimer

Deliverable #3: Results

To prepare stakeholders to communicate with the public and respond to public concerns.

Small working groups in the third break-out session identified the top three concerns the public would have in the event of a mass mortality incident (Table 3).

Table 3

Top Three Public Concerns in the Event of a Mass Carcass Management Event

	Beef CAFO Focus Group	Equine, Swine, & Sheep Focus Group	Poultry Focus Group
1.	Safety of food, water, environment, animals, and family.	Why are there so many dead animals?	What happened
2.	Who is responsible for prevention and disease response?	Can my family or I contract this disease?	What's being done?
3.	Reliable information of the incident.	How does this impact the safety of our food, water, and air?	Who's doing what?

Summary of Deliverables

Building positive working partnerships between industry, regulatory agencies, and the scientific community prior to a catastrophic event is vital to overcoming the misunderstandings and confusion associated with these issues that hinder timely carcass management. The top five issues contributing to uncertainty, confusion, or posing insurmountable obstacles to efficient and timely carcass management were identified as issues of policy, jurisdiction, finance, planning and communication.

Carcass management guidelines created for producers should be species specific, concise, and practical and include appropriate contact information on the local, state and federal levels. Carcass management guidelines should include practical synopses of rules; clearly state producer, local, state, and federal responsibilities; and provide practical guidelines of disposal options, alternatives, and procedures to be followed. A carcass management guideline document should be bilingual, contain definitions of key terms, and not contradict itself. Regional differences should be addressed and accompanying documents provided when greater detail is necessary

The top concerns public communications should address are safety, jurisdiction, and incident awareness issues. The public will be concerned about the safety of their families and animals from: contagion, food sources, water supplies, and environmental factors. The public will want to know what the incident is, how it happened, and who is responsible for incident response and recovery. The public will also be concerned with the accuracy and applicability of the information they receive about the incident, as well as the steps being taken by the proper authorities.

Recommendations

Follow-up workshops should be conducted to continue and reinforce the dialogue and collaborations between and among industry, government regulatory, and scientific communities initiated at the Emergency Management of Mass Animal Mortality workshop. These workshops should be either annual or bi-annual, and should involve all stakeholder groups in the identification of best-practices and creation of practical producer decision trees for use in a catastrophic event.

PARTICIPANT WORKSHOP EVALUATION

Satisfaction with Knowledge Gain and Collaborative Opportunities

Workshop participants indicated they were mostly satisfied with overall knowledge gain and collaboration opportunities provided by the carcass management workshop. Participants indicated they were mostly satisfied that the workshop increased their understanding of the issues, regulations, and science surrounding carcass management in Texas. Participants were also mostly satisfied that the carcass management workshop provided them valuable collaboration opportunities with industry, regulatory agencies, and the scientific community (Table 4).

Table 4

Participants' Satisfaction with Knowledge Gain and Collaboration Opportunities (N = 42)

Statement	Satisfaction Level	Mean ^a	SD
The workshop increased your understanding of the issues surrounding catastrophic carcass management in Texas.	Mostly	4.02	.87
The workshop increased your understanding of the regulations surrounding catastrophic carcass management in Texas.	Mostly	3.79	1.14
The workshop increased your understanding of the science surrounding catastrophic carcass management in Texas.	Mostly	3.74	1.04
The workshop provided valuable collaboration opportunities with industry.	Mostly	3.98	.87
The workshop provided valuable collaboration opportunities with regulatory agencies.	Mostly	4.07	.84
The workshop provided valuable collaboration opportunities with scientific communities.	Mostly	3.86	.84
The workshop overall.	Mostly	4.17	.66
Summed Satisfaction ^b	Mostly	3.95	.71

Note: ^aIndividual satisfaction statements. Likert type scale cut points: Not at all = 0 – 1.51; Slightly = 1.51 – 2.5; Somewhat = 2.51 – 3.5; Mostly = 3.51 – 4.5; Completely = 4.51 - 5

Note: ^bSummed Satisfaction scale ranged from 7 – 35.

Agreement Level with Value of Workshop

Workshop participants agreed that the information presented had value for them and they would use the information. Participants agreed that valuable future collaborations were initiated at the workshop, and they would continue those collaborations. Participants strongly disagreed that the workshop was a waste of their time. They also disagreed that too much information was presented at the workshop (Table 5).

Table 5

Participants Agreement Level with Value of Workshop (N = 42)

Statement	Agreement Level	Mean ^a	SD
I will use the information presented at the workshop.	Agree	3.31	.56
Too much information was presented.*	Disagree	3.05 (1.95)	.62
I will be able to use the information presented.	Agree	3.29	.51
The workshop was a waste of my time.*	Strongly Disagree	3.64 (1.36)	.58
Valuable future collaborations were initiated at the workshop.	Agree	3.21	.47
The workshop did not foster future collaborations.*	Disagree	3.40 (1.60)	.63
I will continue the collaborations resulting from the workshop.	Agree	3.19	.45
Summed Agreement Level	Agree	2.56	.21

Note: ^aIndividual satisfaction statements. Likert type scale cut points: Strongly Disagree = 0 – 1.5; Disagree = 1.51 – 2.5; Agree = 2.51 – 3.5; Strongly Agree = 3.51 - 4

Note: ^bSummed Satisfaction scale ranged from 7 - 28.

* indicates items that were reverse coded, therefore higher scores indicate statement disagreement. Values in parenthesis () are un-coded agreement level values.

Information Needs and Value

When asked if they planned to make changes based on the information gained from the workshop, 64.3% ($N = 27$) of the participants indicated they planned to make changes based on the information gained from the workshop, 26.2% ($N = 11$) were not sure, and 9.5% ($N = 4$) did not intend to take action or make changes. Of those participants who were not sure or did not intend to make changes, 11.9% ($N = 5$) indicated they needed more information before making a decision on taking action or making changes; 9.5% ($N = 4$) indicated the information was relevant, but taking no action was the most appropriate decision at that time; 9.5% ($N = 4$) indicated other reasons than those listed in the instrument for uncertainty or not taking action; 4.8% ($N = 2$) just wanted the information with no particular plans to implement it; and 2.4% ($N = 1$) indicated the information was not applicable to his or her situation.

When provided the opportunity to request further information, 40.5% ($N = 17$) of the participants indicated they would like additional information on the topics presented at the carcass management workshop, and 35.7% ($N = 15$) indicated they had adequate information and did not need further information.

Fifty percent ($N = 21$) of the participants indicated the information provided by the workshop was quite valuable to them; 28.6% ($N = 12$) indicated the information was extremely valuable; 16.7% ($N = 7$) indicated the information was somewhat valuable; 2.4% ($N = 1$) indicated the information was slightly valuable, and none indicated the information had no value to them (Table 6).

Table 6
Information Needs and Value (N = 42)

Question	<i>f</i>	Percent
Plan to take action or make changes based on information gained?		
Yes	27	64.3
Not Sure	11	26.2
No	4	9.5
If “No” or “Not Sure”. Why?		
Need more information (or research further) before making a decision on action or changes.	5	11.9
Information was relevant to my situation but taking no action is the best or most appropriate decision at this time.	4	9.5
Something else ^a .	4	9.5
Just wanted the information – had no particular plans to implement.	2	4.8
Information was not applicable to my situation.	1	2.4
Would additional information on the topics covered be useful to you?		
Yes, I would like additional information on:	17	40.5
No, I have adequate information.	15	35.7
Overall, how valuable to you is the information provided by the FAZD workshop?		
Quite	21	50.0
Extremely	12	28.6
Somewhat	7	16.7
Slightly	1	2.4
Not at all	—	—

^aOne participant indicated “Yes” and also responded to this statement raising total *N* for this question to 16.

What Participants Most Liked About the FAZD Carcass Management Workshop

Frequency counts and content analyses were conducted on participants’ responses to the open-ended request: *Please indicate below what you **most** liked about the FAZD Carcass Management Workshop.* Analysis indicated six categories of responses: networking/information exchange; disposal information; agency roles, issues, and regulations; identification of planning gaps; broad representation; and speakers (Table 7).

Table 7

Participant Responses of What They Most Liked About the FAZD Carcass Management Workshop (N = 42)

Response Category	n	Participant Code	Example Statements
Networking/Information Exchange	14	14	<i>Exchange of information with personnel from different agencies and commodity groups</i>
		26	<i>The communication and meeting people you will work with if this carcass management is needed.</i>
		18	<i>The breakout groups b/c all groups were able to hear the other individuals in their groups' ideas</i>
Information	11	24	<i>The knowledge resources that were available.</i>
		17	<i>Good information that assists in this type of disaster!</i>
		6	<i>Good overview, presentation of new technology, past mistakes presented.</i>
Agency roles, issues, and regulations	4	3	<i>Personnel in those agencies. I now have a much better understanding of the part each plays.</i>
		29	<i>Pointed out several agency conflicts. Highlighted different agency assets/programs/resources.</i>
The Speakers	3	4	<i>The speakers/Emergency management Coordinator very impressed with their knowledge and experience you all are the movers and shakers of Texas!</i>
		27	<i>Talk of Mr. Jordan [Mass Animal Disposal: Contractor Perspectives]</i>
Broad Representation	1	8	<i>Wide representation. Broad base</i>
Planning Gaps	1	29	<i>Pointed out gaps in the planning process</i>

Note: Categories are listed from greatest number of participant responses in that category to least number of participant responses in that category. Sample participant statements for each category are reported verbatim

What Participants Least Liked About the FAZD Carcass Management Workshop

Frequency counts and content analyses were conducted on participants' responses to the open-ended request: *Please indicate below what you **least** liked about the FAZD Carcass Management Workshop.* Analysis indicated five categories of responses: break-outs; facilitators; speakers; information/resources; and workshop organization (Table 8).

Table 8

Participant Responses of What They Least Liked About the FAZD Carcass Management Workshop (N = 42)

Response Category	n	Participant Code	Example Statements
<i>Breakouts</i>	6	12	<i>Breaking into groups reduces the amount of inter-agency cooperation, because groups were not evenly broken up. The amount of pure problem solving time was reduced.</i>
		32	<i>Break outs needed clearer focus/objectives easy to wander from specific goals.</i>
<i>Speakers</i>	5	11	<i>Ensure keynote speakers are up-to-date on structures within the state and Emergency Management System. Poor or inaccurate information only compounds the problems and confusion we have tried to remove in this workshop.</i>
		39	<i>Some speakers rushed their presentations</i>
<i>Workshop Organization</i>	5	3	<i>Beginning the workshop on Monday. I would prefer Monday as a travel day, instead I had to travel on Sunday.</i>
		27	<i>So fast hard to interact.</i>
<i>Information/Resources</i>	4	9	<i>Too general – nothing was accomplished – no solutions to questions developed.</i>
		25	<i>Need to provide access to more info either through providing websites, literature, handouts with <u>further</u> resources. Provide list of participants with contact info.</i>
<i>Facilitators</i>	3	11	<i>More care should be taken in choosing breakout facilitators. One group could have been more effective had the facilitator been more competent and not had his own agenda. He was poorly informed on issues and often confused the topics and subjects at hand.</i>
		42	<i>Sometimes [facilitator] did not allow for adequate discussion to capture specific & relative points on certain topics. Learned more toward his own ideas to some extent.</i>

Note: Categories are listed from greatest number of participant responses in that category to least number of participant responses in that category. Sample participant statements for each category are reported verbatim

Model Conclusions

The model was successful in creating a positive environment and collaborative relationships among scientific, regulatory, and industry stakeholders. Stakeholders indicated overall satisfaction with the workshop, and indicated the workshop deliverables, information presented, and understandings developed were valuable and useful. Stakeholders did indicate that improper facilitation negatively impacted their experience in the small working groups. Indicating the importance of strict adherence to the nominal group process described in the model for positive working group experiences. Of great promise for the success of future such workshops was the indication by stakeholders that they valued the opportunity to personally meet individuals in the other stakeholder groups they would collaborate with in the event of a mass disposal instance. Most importantly stakeholders stated the collaborations resulting from the workshop were valuable, needed, and would be continued.

One measure of the success of the model and utility of workshop outcomes is that deliverables created are already being utilized. Working group recommendations from deliverable two: Review and update producer guidance based on enterprise type of: who to call; disposal options; and consequences of each option, has resulted in a state regulatory agency using recommendations generated by workshop working groups in updating producer carcass management guideline documents.

The workshop fulfilled its purpose of prioritizing common questions that may lead to agency, industry, and academic interactions and starting the process of dialogue and collaboration between and among these stakeholder groups, *not finding the solutions to science and policy issues*. Some stakeholders expressed dissatisfaction with only identifying the common questions and not identifying the solutions to science and policy questions. Identification of solutions to science and policy questions is a complicated process that realistically cannot be resolved within a two-day workshop. This workshop was the first step in the resolution of science and policy conflicts and laid the foundation for future successful collaborations to resolve these issues.

Model Recommendations

Greater care should be taken in the selection and training of group facilitators as they may have a negative impact on group interaction and effectiveness. It is the participants' input we seek and the facilitator is to elicit member participation and mediate discussion. The facilitators must also have a clear understanding of the activities to be engaged in the small work groups and the objectives that will result from those activities. Confusion or indecision on the part of the facilitator will decrease the utility of the session for the participants and may allow one group to dominate the session to the detriment of the entire session and prevent meaningful inter-group dialogue and collaboration.

Networking and socialization time should not be sacrificed to accommodate lengthy general sessions or break-outs. This networking time is vital to the development of dialogue and interpersonal relationships between the diverse stakeholder groups. Sacrificing this time decreases the opportunity for meaningful and lasting inter-group relationships to be formed.

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