Wrap-up Session

MR. ARMBRUSTER: This session focuses on what this workshop is all about, looking at a research agenda for ERS. We have an excellent panel to help us think about a possible research agenda for ERS. In addition to ERS Associate Administrator Kelley White, we have Dr. Enrique Figueroa, who is the administrator of the Agricultural Marketing Service, which runs a number of marketing-related programs in the United States, particularly, and provides assistance for improving marketing facilities that interface with the transportation system; Shayle Shagam, from the USDA's World Agriculture Outlook Board, which provides important information to private- and public-sector decision makers; and Joedy Cambridge, with the Transportation Research Board, a nonprofit organization that conducts research related to maritime and intermodal transportation.

As we said at the outset, the objectives of this workshop were to raise awareness within ERS about the role of technological and structural change in shipping and its impact on global food and agricultural markets, and then identify the role of ERS in research to provide policymakers a clear understanding of the current and future role of shipping innovations.

We have discussed shipping innovations and some of the changes in laws and we haven't had much focus on the research implications. It has been pointed out that transportation costs are, indeed, on a similar level as high tariffs in their impact on competitiveness in trade. Yet, there is lots of energy and attention focused on reducing trade tariffs, but not nearly so much public attention on reducing transportation costs. Praveen Dixit did point out that one of the goals of ERS is to integrate transportation costs into trade analysis.

Our panelists will explore the implications of what we've heard the last couple of days for the ERS research agenda. We will start out with Kelley White, associate administrator of ERS.

MR. WHITE: Thanks, Walt. I feel a little bit constrained by the time dimension of transportation in trying to draw very many implications for our research program from what I've heard the last day-and-a-half. This has been an extremely interesting and very diverse set of presentations. I sat down this morning for a few minutes with a cup of coffee to think about what I might say. And I started out just trying to jot down a few of the interesting issues that have been raised. Let me just tick off a couple of them.

Why is the United States not a player in ocean transportation? What difference does it make? We have been told that economies of scale are driving the structure of ocean shipping, which has implications for the economic viability of the ports, and that we may end up with all of our agricultural commodities being shipped out of Portland, Oregon. At what point do the diseconomies of the collection or concentration of commodities at a single port and the diseconomies of distribution of imports from a single port outweigh the economies of larger ships?

What are the economic implications of changing transportation technology for the structure of the transportation industry and, thus, for the location and structure of agricultural production,

processing, and distribution? What are the implications of changes in transportation technology and infrastructure for international competitiveness?

What are the implications of what we're told is the deteriorating and depreciating nature of the internal U.S. transportation infrastructure at the same time our competitors in Latin America are investing heavily in modern transportation infrastructure and liberalizing their internal transportation policy? We have talked almost exclusively in the last day-and-a-half about inter-country transportation. It may well be that the implications of differences in internal transportation may be more important than differences in international transportation costs for competitiveness.

And what are the relative trade effects of further deregulation of transportation versus investment in transportation infrastructure?

What are the opportunities for new transport technology--containers, for example--to provide cheaper and more effective means for identity preservation of specialized GMO-created varieties of what in the past have been commodities but now are differentiated products? Is it going to be possible to load containers with a differentiated type of corn at the farm, seal that container and transport it to its ultimate end-user without having to have a whole new set of silos? If we go that direction, what are the implications for where those kinds of differentiated commodities can be produced? Are small farmers disadvantaged by that kind of technological change?

And finally, we haven't talked a great deal about the consumer implications of changes in transportation technology and transportation policy.

Now, all of these are interesting and, I think, researchable economic issues. Which of them should be part of the ERS research portfolio? I'm not sure I know, but I think there are some criteria that we want to use in deciding. First of all, is the issue compatible with the ERS mission, which is to provide economic information to improve public and private decision making with respect to agriculture and the rural economy. And we really are responsible for providing information to improve private decision making if there is a large public good dimension to provide that information; otherwise, the private sector should provide it. In terms of improving public decisionmaking, we have to ask ourselves if there is a public policy issue associated with these interesting, researchable economic questions.

Given that the answer to all those questions is "Yes," that this is something ERS has a legitimate claim on doing, we have to ask what is it that we stop doing if we're going to do those things? Or do we have some excess capacity so that we don't have to stop doing anything? And given that we have the capacity to do it, do we have a comparative advantage in doing it?

The pie chart presented this morning showing the percentage of bulk trade that is agricultural vividly made the point that in many types of transportation services, rendered agriculture is a relatively minor actor. Which says we probably don't have a comparative advantage in doing basic transportation research on the implications of liberalization or changes in technology.

I would conclude that our comparative advantage is in finding ways to include transportation or

border variables in our models and analyses, not only in research but also in our situation and outlook analysis. Especially when making long-term forecasts of changing competitive advantages of commodities, we need to consider both internal transportation regimes and changing costs of transportation among countries.

So, let me stop at that.

MR. ARMBRUSTER: Thanks, Kelley. I should note that Kelley has the requisite educational background to talk about this set of research issues, and he has a lot of research experience in the international agricultural trade arena. And he has experience leading research programs both at USDA and FAO.

Our next speaker, Enrique Figueroa, spent about 11 years on the faculty at Cornell University before coming to his administrator's post in the Agricultural Marketing Service here in USDA in October 1997. Enrique operates in an area where he hears a lot from producer groups and others who are affected by marketing programs, including transportation.

MR. FIGUEROA: I am going to take a slightly different approach than Kelley, even though I concur with a number of the things that he just pointed out. The position that I have at the USDA has allowed me to have a vantage point on some issues that I think are developing and will develop in the near-term future that I think is relevant and important for you to consider in formulating your research agenda.

Kelley already mentioned the issue about the movement of identity preserved products. I think that the railroad industry is moving toward a model of unit train shipments. As you know, there are now four Class I railroads. They are very much, in my judgment, oriented for unit trains of 100 plus cars.

On Tuesday, Du Pont announced that they were going to buy out Pioneer Hybrid. Those firms roughly have patented about 200,000 genes in corn and soybeans. And what they are inferentially going to do is to design corn or soybeans or something else specific for the end- user.

If the poultry producer wants a certain profile of nutritional content in the corn for chicks for the first two weeks and another profile in the corn for the next three or four weeks, then they will provide it. They will do that for pork. They will do that for beef. They will do that for wheat. General Mills will say, "I want this kind of flour," and they will develop it and then lease the seed rights to farmers. And the only way for that approach to be a viable enterprise is for the companies to control the distribution of the product, which means moving a lot of grain from point X to point Y with the integrity maintained.

So the issue to me for your research agenda is to what extent the implications of that kind of development in the technological field of seed manufacturing is compatible with developments in the U.S. transportation system? How is it that those two forces are going to be reconciled and hopefully moved in the same direction so they do not disrupt the movement of product internally? Obviously, that has implications for the movement of product in international markets as well.

Some of you may be familiar with the Army Corps of Engineers' nearly completed $50 million study of the Upper Mississippi-Illinois water system. They were scheduled to complete it the end of this year. I think now they've changed their date for the end of next year. It has significant implications for what kind of infrastructure changes are made to those two river systems. I think Kelley is exactly right in that the reason that we have been players in the international markets in grain is because we deliver corn to the Gulf ports at a fairly reasonable price and therefore we can compete in the world markets. If that cost of getting it to port increases (i.e., the infrastructure costs internally), then we may not be as competitive as we think.

AMS is in the process of developing a long-term transportation study with a number of feed lot operators in the Imperial Valley of California. They told me, and I have no reason to disbelieve them, that it costs more to move grain into the Imperial Valley of California from the Midwest than to move grain from the Midwest into Tokyo. They are now considering importing grain from the Pacific to feed California cows because it is cheaper to feed China corn in California than to feed Midwest corn in the Imperial Valley. That has very strong political implications. As you know, producers stopped a load of imported barley in Stockton. But the economics are pointing that way.

Are developments in transportation scale neutral for small farmers, medium-sized farmers, and large farmers? To what extent is the research agenda going to provide answers to that particular question?. Some of you are probably aware that the farm economy has really gone through very severe stress. Hog prices hit historical lows in December. Secretary Glickman appointed a Pork Crisis Task Force. There is severe stress in the farm economy, particularly among small producers. Congress is interested in maintaining small- and medium-sized operations. To what extent is the transportation system facilitating, encouraging, supporting, and sustaining that goal?

To what extent is the research agenda going to provide good information for policymakers in the debate for the 2001 Farm Bill. My guess is that there is going to be more in the Farm Bill that addresses the issue of different farm sizes than we've seen in the past. What is the research agenda capability to generate good information for policymakers so they can formulate their positions for this particular Farm Bill?

Last, let me point out that my agency is responsible for developing the organic rule. I was in Europe a month ago for a conference called BioFac, which is now the largest conference in the world with regards to organic products. There were about 35,000 attendees. Almost every country in the world had a booth to display organic products. I met with officials from various EU countries. The Netherlands has just passed a law requiring that all school lunch programs have a minimum of 15 percent organic food; 15 percent is not much, but compared to the 1 percent in this country, that is a very significant amount. And the shipments have to be maintained separately, not as a commodity, but as a differentiated product.

My guess is that you will see more of this developing in Europe. We need to have research that addresses this development. What are the implications for the transportation system? My judgement is that once USDA issues a final rule there will be a significant increase in volume,

particularly because we are going to have standards for livestock and poultry products that require all the inputs, particularly grain, also be organically certified. The demand for transportation for these products is going to be changing.

One last thing, to what extent is the infrastructure, both domestically and internally as well as in international markets, going to be geared to East-West trade versus North-South trade? What about our port capacities, how the boats and ships and vessels call on ports going North-South versus East-West? My guess is that you will see much more trade--this is a longer-term issue--going North-South within the U.S. and with U.S. trading partners than East-West.

So with that, I hope I've contributed to your two days of deliberations. Thank you.

MR. ARMBRUSTER: Thank you, Enrique. I think you highlight some very real issues that the commodity groups and processors in the U.S. are going to need to be paying attention to in terms of future trade. And there are some research issues there that are yet to be looked into.

We'll now turn to Shayle Shagam, who is the livestock analyst with the World Agriculture Outlook Board. Prior to his assignment there, he spent a number of years at ERS.

MR. SHAGAM: This has been a very interesting conference. I am glad for the opportunity to have listened to the discussion and to have learned quite a bit about the impact or the lack of impact transportation may have on some of the competitive issues. What I would like to talk about is what the potential impacts may be for an ERS research agenda.

We see the growing trend toward regionalization in international trade among countries bordering one another. We heard from Professor Frankel yesterday that distance matters. But there are other things, such as a common border and language, that may matter to as great or to a greater extent. Two questions come to mind.

The first is, if we look at what is happening in the EU where they have removed border controls, have we seen any changes in the structure or the cost of transportation? You don't have to go through the customs clearance processes. I don't know if any trucker from any country in the EU can compete in any other country; in other words, can a French trucker pick up a load and deliver it somewhere in Italy. But do those kind of questions make a difference in terms of the impact of distance?

It also has some implications for the United States and NAFTA. If you do away with the cabotage laws, can a trucker from Mexico pick up a load and deliver it somewhere in the United States? For livestock, a significant cost is incurred by a Canadian trucker trying to bring a load of live animals or meat into the U.S. because of the lack of back-haul freight. In other words, if you are delivering a load of beef from a plant in Calgary to Los Angeles, you must have a load going back to Vancouver or someplace. You couldn't pick up a load in Los Angeles and drop it off in Spokane on your way back. So that, in fact, I was told, increased the cost for a Canadian trucker. Does that have a potential impact on who can compete and what kind of price and services they can offer?

For example, is it worthwhile to establish a slaughter plant in Mexico; bring in U.S. livestock, slaughter it in Mexico, and ship the product back to the United States, assuming you can meet the relevant health and safety issues.

The second point is that I'm very pleased that we have people like Heidi because many years ago when I was struggling to do a project for the Meat Export Federation on the cost of delivering meat from various countries into Japan, I called every shipper to try to find the relevant cost of transportation. We didn't have an organization like currently exists in AMS to provide one place for information on a bunch of transportation issues.

But what is the relevant cost of transportation? Do we really know? I had a call one time from a gentleman who hauled livestock to and from Mexico trying to figure out what the cost of delivering livestock to Mexico was from U.S. farms or packing plants. He had just had his truck seized. So do you figure in the cost of that truck in the transportation cost? He was absolutely positive that I should be figuring in the cost of his truck because he was never going to get the thing back again. So those are the questions that have to be raised as well as defining the real cost of the transportation.

The third point is to ask what are the new technologies on the horizon that will alter the cost and potentially the structure of shipping? We heard about the large-sized container vessels that will limit the number of ports they can service. Another question is whether some of these technologies are being pushed forward by industries? As industries consolidate and have sufficient market power, is it worthwhile for them to develop new methods of transportation of some goods that they then suggest to the industry, or are they simply going to be the adopters of whatever technology the industry cares to offer them?

The next question concerns industrial structure. We've heard that you're going to go from a cartel to an oligopoly. Is firm behavior going to change? It may just be that the three firms that are left are going to sit around the table in the morning and determine what the freight rates are going to be for the future. So you've got a cartel that simply exists but didn't have the formal sanction that a cartel formerly had. Does this have an impact on the transportation of grain or meat?

Currently there is the potential merger of the Illinois Central Railroad and Canadian National Railroad. And one of the issues that has come up is will there be sufficient competition in some of the rural areas of Kansas. That is obviously an issue that policymakers have to consider before they give sanction to mergers.

Finally, I raise an issue because it may hold some interesting questions for ERS in terms of supporting USDA's mission. Are we going to see the movement of transportation centers and delivery points for entering this country at different locations than currently? When I first started in ERS most imported meat came into Philadelphia. Why Australian meat was delivered all the way to Philadelphia as opposed to Los Angeles, I don't know. That was the way it was, I was told. Then, eventually Los Angeles began to increase its share of imported meat.

Does ERS have the ability to look at some of these issues about regional delivery of product as a budgetary issue? Where would you put resources if the Animal and Plant Health Inspection Service (APHIS) or the grain inspection service (GIPSA) has to look at building facilities to test product or to increase inspectors? Are there things we can tell them about where future resources might be better allocated? I note this question has arisen in the case of livestock, with APHIS trying to determine if they're going to hire staff. What are the times they need to have people on board to look at livestock? Are there specific times of the year when livestock crosses the border and more staff is needed than other times of the year?

The same question can hold on locational questions as well. If Baltimore is not going to be as important a delivery point for product, do you take resources away from Baltimore and reallocate them to Spokane? ERS may be able to answer some of these questions about where imported product is going to be entering the U.S. market.

Those are the five questions that came to mind as I listened to the workshop discussion. Again, it was a very useful set of discussions, and I appreciate the opportunity to participate.

MR. ARMBRUSTER: Thank you, Shayle, for identifying those questions, which I think have some real relevance to the ERS research agenda.

Our final presenter is Joedy Cambridge, who is with the Transportation Research Board, which is a nonprofit organization. Joedy intends to tell us about the organization with which she works. But suffice it to say that she works on maritime and intermodal research and technology activities and has extensive experience with that in the industry and in her current position.

MS. CAMBRIDGE: Okay. I know some of you in the room are familiar with TRB because Jim serves on one of my committees, Bill Hall serves on one of my committees, and others of you, I know, have participated in some TRB activities.

As Bill mentioned, TRB is the largest unit of the National Research Council. And the National Research Council, for those of you who are not familiar with it, is really the operating arm of the National Academies of Science and the National Academy of Engineering. We are under the authority of the National Academy of Sciences. We serve as an advisor to the Federal Government.

We are private, nonprofit, independent, and self-governing. And one of the reasons that people turn to the NRC and the TRB for a lot of their research is because we are independent. We offer an unbiased look at critical issues. And we do this through study panels that we put together, and through more than 200 volunteer committees on various topics.

I also have some brochures here that give an overview of TRB and information on getting involved in TRB committees.

TRB's activities are sponsored by state DOTs, the administrations of the U.S. Department of Transportation, the U.S. Army Corps of Engineers, the Environmental Protection Agency,

AMTRAK, as well as a number of industry associations. Sponsors are ex officio members of TRB's executive committee, and there is a minimum dollar amount that these organizations contribute to have a seat on that committee.

We also have a number of affiliates, all of whom have designated representatives as official liaisons to TRB. The U.S. Department of Agriculture is one of our affiliate members; Eileen Stommes is the official USDA representative. But we also have a number of other organizational affiliates from both the private and public sector.

We also have university representatives from all over the country. This is a real advantage because we have those links directly to all the major research institutions.

Another thing that my division of the TRB does every year is to visit all 50 States. They are divvied up among our 14 senior program officers and we go out and make what are called "research correlation service visits." That means we visit the DOTs, the major transportation facilities, the major research institutions, major industry associations that relate to transportation, be it the Asphalt Association or groups like the Tennessee Valley Authority, the Waterways Experiment Station of the U.S. Army Corps of Engineers. We are out there every year finding out what research is going on and what research needs have been identified at various locations.

This is all plugged into a research database that we have that States can tap into. Recognizing that we have limited resources, both in terms of money and manpower, we feel that being a clearinghouse for research is probably one of the most valuable services that TRB provides.

The mission of TRB is to promote innovation and progress in transportation by stimulating and conducting research, by facilitating dissemination of information, and encouraging the implementation of research results. Obviously, this is one of the reasons that Bill called me when he first started talking about this workshop.

Our specific goals are to foster and contribute significantly to the research, development, and implementation of new transportation technologies and innovative practices in the United States to strengthen our activities in the nonhighway modes. TRB first began 75 years ago as the Highway Research Board, and it was 25 years ago that it became the Transportation Research Board. And slowly, but surely, we are getting beyond the asphalt and concrete to really focus more attention on the other modes of transportation. Also, to contribute to decisionmaking on national transportation policy issues, to improve communication and public awareness of issues in transportation both here and abroad, and to promote greater participation in our activities by the private sector.

Our activities range from policy studies, which are part of our division B, Policy Studies and Information Services, and I have a couple of examples. This is one recent report, "Policy Options for Intermodal Freight Transportation." This one was just recently published and issued. And here's another one, "Paying Our Way: Estimating the Marginal Social Cost of Freight Transportation." We also have one underway right now on freight transportation capacity into the 21st century, again an issue that's certainly of great interest to your constituency.

We hold an annual meeting here in Washington, DC in January. About 8,000 people attend from all over the world. We have about 450 concurrent sessions that run from Sunday through Thursday. I strongly encourage you to get information about it off our website and possibly participate in some future year.

Just as an example, solicited research papers are presented. We also get unsolicited research papers that are peer-reviewed and many of these are presented at the annual meeting. Some get published in our Transportation Research Record series. I brought one example that features ports, waterways, and marine transportation. Most of these papers deal specifically with inland waterway transportation.

We also have invited presentations. We had an excellent one this year by Tim Gerik of the Iowa Corn Growers Association who talked about the developments happening outside the United States that are going to affect the competitiveness of U.S. agricultural exports, specifically some of the inland waterway developments in South America. As they become capable of transporting their agricultural commodities more competitively than we can, it is going to have a significant impact on U.S. agricultural exports. And, of course, the biggest concern is that if they can develop an inland waterways system that does not require the kind of major infrastructure investment that our inland waterways system now requires as it gets updated, that is going to have a significant impact. He also pointed out the issues relating to rail transportation, issues for the agricultural growers, including the cost and the lack of equipment. So, really, it all just mushrooms and everything affects everything else.

TRB holds mid-year committee and task force meetings. Every year we have a summer Ports and Waterways Conference. Last year it was in Seattle, the year before that it was in Gulfport, Mississippi, and in July 1999, it is going to be in Duluth, Minnesota. So, obviously, we will have a very heavy emphasis in this program on agricultural and bulk shipping.

We also organize annual specialty conferences on a number of issues. For example, a freight intermodal conference is coming up in Long Beach in February 2000. We are cosponsors of a number of other meetings and conferences that are actually put together by other organizations.

TRB has a number of publications, including the *Record*, which I showed you earlier. We also put out a bimonthly research magazine. The one for May-June of 1998 focuses on ports and waterways. It includes an article on the impact of megaships on landside infrastructure and one on transportation data that you may find of interest. We publish special reports, as I mentioned, and reprints and CD-ROMs of all the research papers presented.

Study titles that either have already been published or will be published include "Measuring the Relationships Between Freight Transportation Services and Industry Productivity" and "Financing and Improving Highway Access to U.S. Intermodal Cargo Hubs," both relevant to the workshop topic, as you can see. There is a whole range of things that we get involved in. I strongly encourage you to build on some of the work that we do and also to suggest research topics. Our committees put out calls for papers and we welcome any suggestions and ideas from

groups such as yours.

MR. ARMBRUSTER: Thank you, Joedy. I think you can see there's an opportunity for some interaction between TRB and the Economic Research Service. As you look at research issues, there might be some TRB materials and findings to help you further refine your research agenda related to transportation and trade.

Now, we'll take any questions from the audience. If you have a question for a specific person, identify them, otherwise we will throw it open to the whole panel.

MS. BALLENGER: I think if it is directed to anybody, it would probably be best directed to Joedy. We've talked a lot over the last couple of days about technological change in transportation, and, clearly, there has been an awful lot. But we haven't talked much, with maybe the exception of some of Dick Parry's comments about the ARS work, about where those innovations are coming from and what is driving them.

There is some good research that we could take a look at to help us better identify the driving forces behind these innovations and the relative roles of the public versus private sector in transportation-related innovations. I'm not just talking about the ships themselves, but the whole set of things that we've talked about in terms of cold or supply chain management over the last couple of days.

MS. CAMBRIDGE: Well, I can't say that there is any easy way to find this information. We do compile all of these. We have what is called the Transportation Research Information Service, or TRIS, database, which is searchable, and it does include things that relate to transportation technology, as well as transportation economics and transportation planning. So if there is a particular topic that you are interested in, that is a good place to start. We work jointly with the Bureau of Transportation Statistics to compile materials that get entered into TRIS, which ranges from journal articles, to technical studies, to policy studies.

TRIS has been around for a number of years. Just about anything that is going on in transportation research gets submitted and entered into the TRIS database.

We also coordinate with groups such as SNAME, the Society of Naval Architects and Marine Engineers. In May, we will be hosting one of their committee meetings at TRB. So we keep our contacts and we have liaisons with all these other industry groups. There is also the American Society of Civil Engineers. And, again, we cosponsor things that go on with these other organizations. But we are the central clearinghouse for all of the stuff that is going on out there.

MR. ARMBRUSTER: Another question?

MS. GLASER: Lewrene Glaser, ERS. Joedy, what kind of air transportation information is in the database?

MS. CAMBRIDGE: We have a whole set of committees that deal only with aviation; aviation

issues, aviation technology, and public policy issues such as noise. I know one of the points someone made this morning was that U.S. airports never prevent old airplanes from landing at U.S. airports. Not quite true. It depends on how much noise that old aircraft makes. But yes, there is a senior program officer who is an aviation specialist who can certainly help you and refer you to some information.

But on the cargo side, I would also encourage you to touch base with the Cargo Airline Association, which is based here in Washington, DC. Steve Alterman is the executive director.

I've only been at TRB for two-and-a-half years and prior to that I spent about 20 Years in consulting and did a combination of aviation and maritime work. And we did a very comprehensive study on the economic impact of the all-cargo airline industry on the U.S. economy and gathered a lot of proprietary data and information that was then aggregated in the final report that was published. But that was prepared for the purpose of going up on the Hill on behalf of the air cargo industry.

So there is some information out there but it certainly is a little harder to get hold of than it is for some of the other modes. But I would encourage you to contact CAA because they do have a lot of information available.

MR. ARMBRUSTER: Is there another question from the audience?

PARTICIPANT: How do shipping rates differ by commodity breakdown?

MS. REICHERT: For high-value products, there are three different ways: by weight, which would be in metric ton for some commodities such as poultry, beef, cotton; for other commodities, especially fruit, it is on a per-package basis, such as $3 per package; or per each 20- or 40-foot container. So it depends mostly on commodity and then also by trade route. Does that help you?

MR. ARMBRUSTER: The point is the Agricultural Marketing Service (AMS) has some data available on this. I think one of the things we have found through interaction with AMS colleagues the last several days is there is potentially a lot of opportunity to interact on your research agenda with AMS. Enrique identified the need for some information to answer questions that are coming forward in their programs. They have some data sources and people working on transportation. So ongoing interaction seems to be a real need and opportunity as you develop your research agenda further, as well as with the TRB people, obviously.

MR. ARMBRUSTER: Now I would like to turn it over to Bill for closing comments. But first, I think we should thank Bill and Nicole and whomever really did the work behind the scenes putting this program together. It has been a good focus on transportation-related issues that will have an impact on the competitiveness of trade from the U.S. viewpoint in the future. Also, let's thank our panelists from this last session.