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SUMMARY ADDRESS: A DOMESTIC VIEW

Dr. Clarkson Oglesby, Stanford University

When I asked what I was supposed to do in these closing remarks, I was told to give you my personal impressions of the conference. That is what I am going to do. I realize that what I will say will reflect my personal biases, and I hope you will understand.

For me, this conference has been a tremendous learning experience, both technically and in talking to people. It was a pleasure to feel the high level of enthusiasm that everyone here had in talking about and learning about low-volume road problems. I hope we can keep it when we go back home and get buried in all the things that are waiting for us there. Also, I was personally pleased to find a strong level of agreement in this group on the fact that low-volume roads are different. Fifteen years ago that would not have been the case even among individuals who were dealing with low-volume roads. Today we accept that concept, although there are many other highway people who do not buy the notion that low volume roads are different and therefore need special attention.

In looking at the conference activities, I found them to deal with five distinct activities, three of which fall under my assignment. These three were:

1. Lessons we in the developed world must learn about and can learn from the developing world.
2. An assessment of the subjects covered by the formal papers.
3. The problems bugging low-volume road people in the United States and the need for research to aid in solving those problems.

I first want to go over very quickly what I learned about and from the people representing the developing nations. Among the lessons are:

1. Most of the population is in that part of the world, a fact that most of us have not faced up to. These people have expectations and needs and we on the small side had better be on notice.
2. The changes in the developing nations are taking place very fast. They are moving rapidly from transporting goods on human heads to trucks and moving people by walking, pedicabs, and bicycles to buses and private automobiles.
3. Progress in transportation in those nations comes through enlisting the people and getting them involved in providing the things they feel they need rather than expecting them to accept something someone else says they need. This concept should be helpful to us. Too often, we in the USA say "We're the engineers, we know what you need." This

view often is the root cause of some of our problems.

4. Data are available on vehicle operating costs that we in the United States badly need. I've been asking, "When are we going to get them in usable form." In particular, we need data on the effects of road roughness on operating costs since this is a major consideration in low-volume road situations.
5. The people concerned with roads in developing countries made clear to us that low-volume and low-cost have to go together. Somehow we in the United States have not recognized this fact in deciding such issues as geometric standards and surfacing types.

I will not attempt to discuss individually any of the 53 formal papers given at the conference. My concern is with the balance among topics. Sixty percent of the papers had to do with materials for or design of surfacings. This contrasts with about 30 percent at the first conference in Boise eight years ago. My concern is that such topics as economics, planning, design standards, or drainage received almost no attention directly. There was nothing at all on training. And yet, if you look at the list of important issues developed at the session on research needs, as reported earlier in this session by Mathew Betz, these issues are the ones at the top. And so, in appraising the conference papers from a national point of view I must ask, "Are we on the right track in our research emphasis?" Not that the papers were not excellent and the subject matter important; they were. But how do we get research going in these other areas?

A partial answer to my question may be that some of these topics were treated in detail in the excellent series of compendiums and syntheses that were financed by AID and published by TRB under the general heading of Transportation Technology Support for Developing Countries. There is a vast sum of knowledge in them. To my astonishment, I discovered that many people at the conference did not know they existed?

Another topic that received almost no attention at the conference was safety. The people who were running scared about this omission were concerned because of the mounting costs of agency and personal liability. I see two reasons that this conference largely ignored the subject. First, safety is a universal subject and safety concepts are not unique to low-volume roads; and are treated in detail elsewhere. Second, from an economic point of view, accidents have not been a major concern with low-volume roads in developed countries. But when I looked at the slides from some of the developing countries and saw the conflicts and accident potential when pedestrians, bicycles, animal-drawn vehicles, automobiles, buses, and trucks all try to use the same roadway, I began to realize that they have a safety problem. But, repeating, I do not see it as high-priority research topic, peculiar to low-volume roads in the United States or other developed countries.

The third area which I wish to summarize stems from the conversations that took place in

the lobby about problems facing people in the United States, mainly the county engineers. These concerns are reflected not in the conference papers but in the discussion of research needs. They dealt mainly with four topics, namely: communications, computers as a management tool, finance, and liability for accidents. All of these offer tremendous potential for research and reports of practice. I hope all of them will be major topics at the next low-volume roads conference.

Regarding finance, the first comment was always, "We in low-volume roads get what is left after everybody else has had his cut at the money." I would propose that this is a defeatist attitude and doesn't get us anywhere. There were helpful informal discussions of how to get money in different ways than from the state capitols and the federal government. They stressed contributions from or assessments against those who benefited. In some cases property owners might pay for the work directly. This is why it is important that we get the vehicle-operating costs data that have been developed in Kenya, Brazil, and the Caribbean into usable form. With that information, local officials could go to people and say, "If you have a rough, substandard road it is costing you this much money out of your pockets." We've never been in a position to do that before. So I am really excited that out of this conference will come reliable, factual data that can be used to get legislators and property-owner's attention.

The final item is the matter of agency and individual liability for accidents. This has gotten completely out of hand. These lawsuits and the large awards rest on the notion that road agencies and their staffs were negligent in design, maintenance, and traffic control. What we are going to have to do to handle this problem is to demonstrate that agencies and their professionals followed good, sound engineering and professional practices. To date we as engineers have left it to the lawyers to handle these lawsuits and to fight these claims. Where research and information exchange comes in is that engineers have to develop agreed-upon standards and practices (in our case for low-volume roads) and be aggressive in promoting legislation and participating in legal actions that will make these standards acceptable. This will take away the basis on which lawsuits are filed. Getting liability claims under control is one of the most pressing problems facing professionals in the United States and that is why I am pushing it so hard.

Summing up, in the four areas of communications, computers, finance, and liability, research and information exchange are important but have been neglected. We as engineers must get involved. It is not enough to build good roads. As professionals we must reach out into these areas and take them on as another professional obligation. To do this, we first must develop data and that is where research comes in.

I hope you will pardon the fact that this summary has pointed to the future, rather than dwelling entirely on the conference. I feel

strongly that research on low volume roads must add these new dimensions. The technical side is being well cared for as has been clearly demonstrated by the presentations of this conference. But to me, taking a national point of view, the conference's main lesson was that we must broaden our efforts and tackle the other pressing issues which low volume road engineers must face in the years ahead.

SUMMARY ADDRESS: AN INTERNATIONAL VIEW

Victor Mahbub Mata, Secretariat of Communication and Transport
Federal Government of Mexico

Introduction

I wish to express my sincere congratulations to each and every one of the commentators of this conference. The seriousness and professional character of their work are worthy of acknowledgment and demonstrate the existing interest and concern regarding the central theme we are dealing with: Low Volume Roads. I likewise wish to express my sincere thanks to the organizers of this important event for having considered that the point of view of a country like Mexico, whose experience with low volume roads lies within a socioeconomic context different from that of the host country, would be interesting enough to be included in the closing summaries of this conference.

Having listened to most of the papers given during this conference and having carefully read the rest of the works presented, I would like to submit for all the attendees' consideration a synthesis of the points that from the so-called international view I consider to be of major importance, as well as some remarks, a very few, based on Mexican experiences with low volume roads. With this aim, I have considered it appropriate to group the different subjects we are dealing with under the following main headings: Planning, Design and Construction, Maintenance, and Pavements and Soil Mechanics.

Planning

From the keynote speech through most of the papers, it has been clearly stated that there is a significant interest in dealing with the severe restrictions that the worldwide financial crisis imposes on resource allocation for construction and maintenance of roads. This is, therefore, the time to find imaginative solutions for using limited resources inside a multiple objective framework, intelligently expressed by Mr. Owen when he stated that the world need for additional supplies, further requirements for transportation, rural access, and future social needs remain to be satisfied. We live in a challenging time full of new opportunities, and this is precisely what has been shown in this conference by analyzing critical issues that must be overcome in the coming years by the road organizations of developed and developing nations.

Praiseworthy indeed are the efforts to deal with the scarcity of financial resources, which will continue to be among the main worries in

the coming years, and to search for more economical and lasting materials for the construction and maintenance of low volume roads. In spite of this perplexity, however, I must point out that the human concern has been considered in many papers. For instance, it has been recommended that local transportation patterns strictly associated with tradition and the culture of diverse communities be retained. Riverson, Hine, and Kwakye have stated that the social impact of low volume roads is even more important than production increases. Nevertheless, I have to point out here that it is also important, very important, to open more agricultural areas so that their products can be traded, giving the opportunity to isolated communities to participate in the national marketing process, thus transforming it from an autonomous economy into a community with perspective.

I have listened with particular interest to the development of models which, without any doubt, will become significant planning tools for low volume roads. The efforts to find out how to invest, as well as those related to vehicle operations costs, will certainly form a technical basis for decision making. However, it must be emphasized that the value of these models stems from their use as a part of a major system. This system is the whole decision making process. In addition to the technical point of view provided by these models, one must consider, for instance, social costs, political problems, lack of technical data in many developing countries and the so-called opportunity costs. As a reinforcement to this idea, I will make reference to the vehicle operating costs that were discussed in different sessions. The papers related to this topic are mainly oriented toward reducing vehicle operating costs through improved road surface standards, such as roughness and geometry. I am convinced that a sacrifice of vehicle operating costs can be made on behalf of social costs. Let me give you a further explanation. It is important for some countries to have more roads with medium standards than to have just a few roads with higher standards. The result is that you divert cost from the people who have nothing (the inhabitants of isolated communities) to the people who have (the car owners). This is an experience that has been confirmed by more than 80,000 kilometers of these roads in my country, Mexico.

Many ingenious ideas for solving specific planning problems have been expressed in this conference. Nevertheless, the evaluation of their future use is highly recommended because problems differ from one environment to another depending on diverse characteristics and the development level for each country. For instance, Mr. Mercier's paper has a proposal related to closing a road when there are not enough resources to maintain it, thus avoiding further deterioration. This proposal might seem acceptable from a rich country's point of view. However, for a developing country with a road network in its first stages of formation, this solution might not be so well accepted since many times low volume roads are the only means of transportation.