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INFORMATION TECHNOLOGY AND A GEO-SPATIAL MARITIME CARGO DATA SYSTEM FOR THE WERTERN HEMISPHERE

(Presented by Mark Abkowitz)

Information Technology and a Geo-spatial Maritime Cargo Data System for the Western Hemisphere

Organization Of American States

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Available Information Technologies for Maritime Cargo Applications

- Advanced Communications
  - Fiber Optics
  - Digital Transmission
- Computers
- Computer/Communications Integrators
- Detection/Surveillance
- Global Positioning Systems (GPS)
- Geographic Information Systems (GIS)
- Internet/Intranet

Benefits of Information Technology

- Improved operating efficiency
- Enhanced safety
- Reduced congestion
- Improved reliability
- Access to better planning information

Geo-Spatial Maritime Cargo Data System

Goal:

Develop a maritime cargo data system to aid policy development
and transportation planning in the Western Hemisphere

Project Phases

- Phase I - Evaluate the feasibility of using information technology for constructing a maritime cargo data system (completed).

- Phase II - Develop a first generation maritime cargo data system for the Western Hemisphere.

- Phase III - Full-scale system implementation and training for OAS member countries.

Phase I Findings

- Maritime cargo data can be incorporated into a GIS to support policy development and transportation planning.
- Participating countries are willing to provide data in support of system implementation.
- Countries that currently do not have data are willing to develop a compatible data collection system.
- The Internet can be used successfully to support transfer of information to system users.

System Design:
Geographic Coverage

System Design: Port Representation

- Every country will have at least one port included.
- Every major port handling international trade above a specified volume will be represented.
- Any port handling regional trade activity will be included.

System Design: Port Information

- Port name
- Port code
- Country
- Country code
- Public/private ownership
- Web link address (if available)
- Contact name and address
- Highway/rail/air connections

System Design: Trade Information

Origin:
- Port name
- Port code
- Country name
- Country code

Destination:
- Port name
- Port code
- Country name
- Country code

Commodity:
- Name
- Commodity code (CPC)
- Shipment type (import/export, transit, transshipment)
- Cargo type (breakbulk, containerized, liquid, etc)
- Volume (tons, containers)
- Value ($US)

System Design: User Capabilities

- Analyses
  - Trade flow analysis
  - Historical comparison of trade flows
  - Trade forecasting
- Analyses Options
  - Port to port
  - Port to country
  - Country to port
  - Country to country
- Display analysis results in graphical and tabular formats
- Access to port and country profiles
- Download/upload cargo data
- Link to port, country and partner home pages
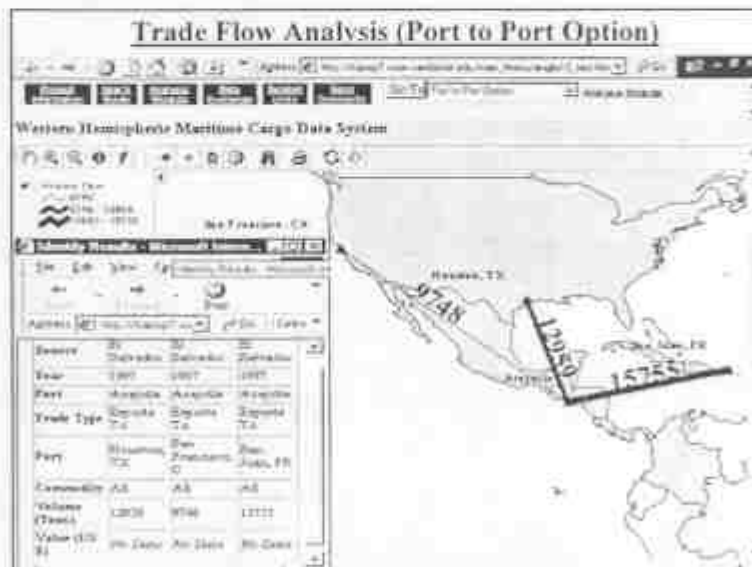
System Prototype (Internet Version)

Trade Flow Analysis (Port to Port Option)

Trade Flow Analysis (Port to Port Option)

Trade Flow Analysis (Port to Country Option)

Trade Flow Analysis (Port to Country Option)

Access to Port Profile Information

Access to Port Home Page

Access to Country Home Page

Access to Partner Home Pages

Historical Trade Comparison (Country to Country Option)

Historical Trade Comparison (Country to Country Option)
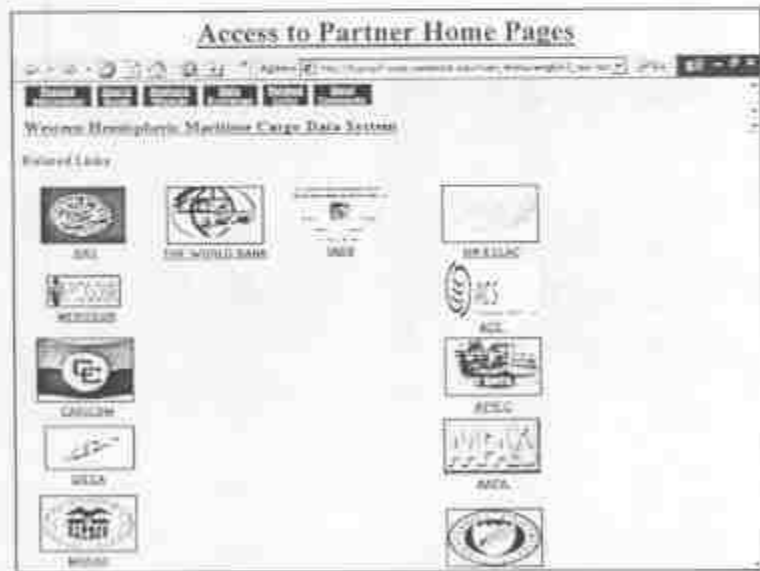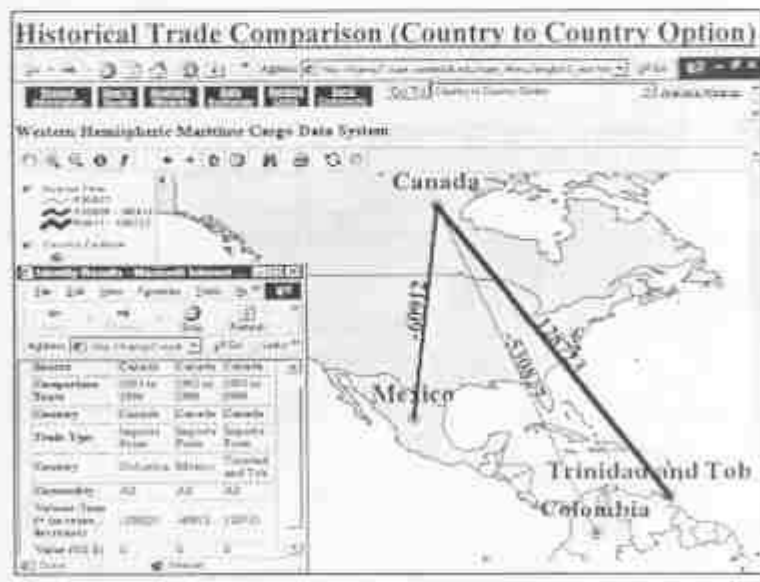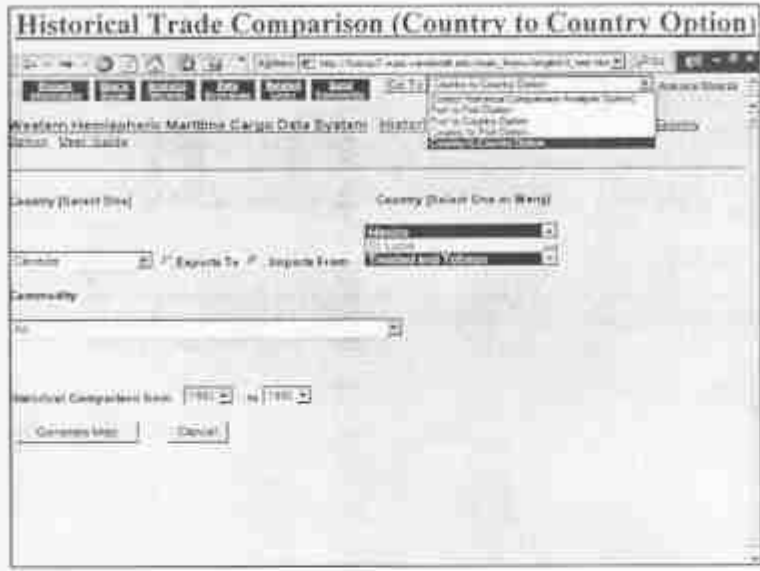
Trade Forecasting Analysis (Country to Country Option)

Trade Forecasting Analysis (Country to Country Option)
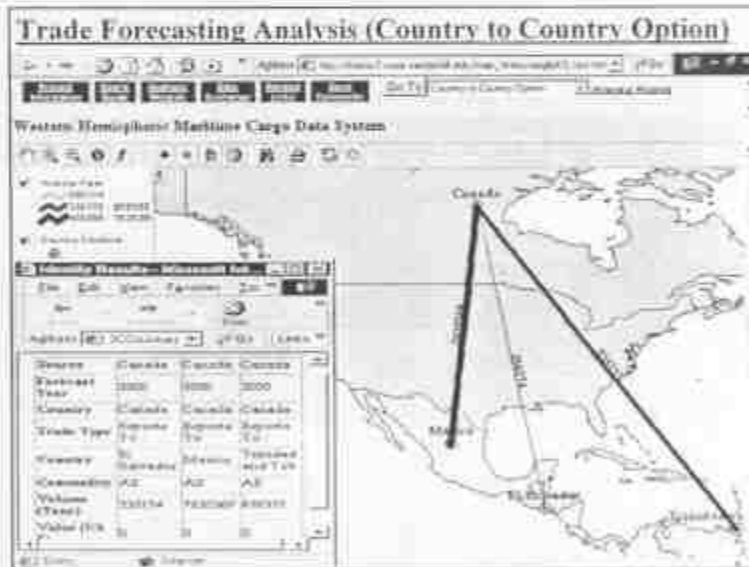
System Design: Implementation Issues- Part I

- International Cooperation
  - Data submission
  - Reconciliation of data inconsistencies
- Multiple Language Use
  - English, Portuguese, Spanish
- Data Confidentiality
  - System will use public data provided by government statistics agencies
  - Security measures will be used for data upload/download
- Data Uniformity
  - Standardized port, country and commodity codes will be used

System Design: Implementation Issues- Part II

- System capabilities will be accessible through the Internet and include the following features:
  - The full geographic data system can be downloaded
  - Analyses can be performed directly through an Internet web browser (e.g. MS Explorer, NetScape)
  - Users accessing the data through the Internet will not have permission to modify data
- System access will be free and open to the public.
- Stand alone version will also be developed for GIS software users.

Funding Requirements and Project Schedule

PROJECT SCHEDULE	2000											
ACTIVITIES	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
PHASE II												
1. REFINE SYSTEM DESIGN												
2. DATA COLLECTION												
3. DEVELOP FIRST GENERATION SYSTEM												
(INTERNET AND PC VERSIONS)												
PHASE III												
SYSTEM INSTALLATION AND TRAINING												

- Phase II Funding Requirements: $200,000

Resolution

CONSIDERING:

That OAS has conducted a study evaluating the feasibility of implementing a Geo-Spatial Maritime Cargo Data System for the Western Hemisphere.

That the study determined such a system is feasible and cost-effective to implement.

That such a system would greatly benefit maritime trade analysis and planning.

RESOLVES:

To enthusiastically endorse continuation of the project into the next phase, the implementation of a system prototype involving the participation of several countries in the Caribbean, Central America, North America and South America.

To authorize the OAS Secretary to solicit funding to continue the project from the World Bank, Inter-American Development Bank and/or other sponsoring agencies.

Western Hemispheric Maritime Cargo Data System Development and Implementation

Prospectus

Background

The Organization of American States (OAS) recently completed a study of the feasibility of developing a geo-spatial system for Western Hemispheric maritime trade. The motivation for this effort is to fill a need expressed by the international community for Western Hemispheric maritime trade information to aid transportation policy and planning.

Performed by the U.S. Maritime Administration in conjunction with Vanderbilt University, the study concluded that such a system is feasible and can be implemented in a cost-effective manner using existing geographic information systems (GIS) technology. The proposed system can produce maps and reports showing maritime cargo movements between user-specified shipping origins and destinations. Both port and country-level activities can be represented, and commodities can be reported by type, imports vs. exports, or as total activity.

Potential system users include governments/ministries, international organizations, economic businesses, port authorities, individual shippers/carriers, trade associations and chambers of commerce. It was recommended that interested parties be provided access to this information through the World Wide Web. This Internet web site can include a mapping interface, allowing users to perform analyses on the data through their web browser or by downloading any part of the database for internal use.

Countries participating in the feasibility study included Canada, Chile, Colombia, El Salvador, Mexico, Panama, St. Lucia, Trinidad and Tobago, Uruguay and the United States. The Association of Caribbean States and the United Nations Economic Commission for Latin America and the Caribbean (ECLAC) were also involved. Study participants expressed a high level of cooperation and enthusiasm for this initiative. If available, they would use this system today in their maritime planning and analysis activities. These countries and organizations also indicated a willingness to provide public-use data to support the system without concern over issues related to confidentiality.

Project Description

The purpose of Phase II of the project is to implement the findings of the feasibility study by developing and operating a first generation Western Hemispheric Maritime Cargo Data System. The system would include representation from all countries that collect and are able supply the required information. At a minimum, this would include most of the countries that participated in the feasibility study.

To successfully complete this effort, the following tasks will be performed:

1. **Establish port facility attributes.** A basic set of facility data will be used to uniquely identify each port and provide linkages to more detailed information which is readily available through other sources (i.e., port web sites).

2. **Collect maritime cargo data.** This information will be obtained directly from the statistical agencies within each participating country's government. It will include origination port, destination port, commodity, and cargo volume/value. This task also includes the development and use of translation tables so that port and commodity codes conform to a system standard.

3. **Develop GIS applications.** Menus and reports will be developed as part of a GIS that enable the user to perform desired maritime trade analyses. This will include the implementation of point-and-click features to specify analysis inputs, and reporting of information in both visual (map), tabular (spreadsheet) and graphical formats.

4. **Web site design.** An Internet web site will be designed and constructed from which the Western Hemispheric Maritime Cargo System will be operated. The site will be organized to support: 1) port profiles, 2) analysis wizards, 3) data exchange, 4) a users guide, 5) access to partner homepages and 6) e-mail technical assistance. Several languages will be available.

5. **Perform system maintenance.** Quality controls will be administered to ensure that the system is operating as intended. This task also includes collecting data updates from participating countries, compiling it into a single, consistent database, providing updated data on the Internet web site and web-site administration.

Project Cost and Schedule

It is estimated that $200,000 will be needed to successfully complete the described scope of work. Project completion is anticipated within 11 months of notice to proceed.

Other Considerations

Once the Western Hemispheric Maritime Cargo Data System is operational, additional project phases should be considered in order to maximize the potential of the system to meet expressed needs. This includes possible offerings of system training courses, as well as the need to support future system enhancement, operation and maintenance.