LECLERC1999F

CIAT

Centro Internacional de Agricultura Tropical
International Center for Tropical Agriculture

Tools for disaster mitigation workshop. Washington, February 2-3, 1999.

Before and after Mitch: the CIAT experience.

Gregoire Leclerc, Andy Nelson, France Iamy, Miguel Ayarza.

February 1999

Before and After Mitch: the CIAT experience

Grégoire Leclerc
Andy Nelson, France Lamy
Miguel Ayarza

Washington, February 2-3, 1999

CIAT hillsides project

- CIAT Hillsides project: community management of watershed resources
- Active in CA since 1993
- The model: empowermnent of the community through action research and linkages of several decision making levels.
- Information is power: the Honduras Atlas and the Yorito-Sulaco Atlas.

Atlases: a tool for better planning

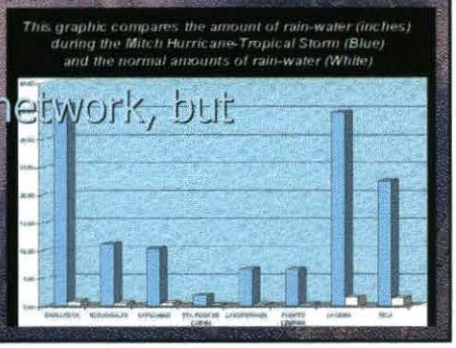
- People from 25 institutions trained in advanced Arcview with the Honduras atlas 3 weeks before Mitch
- GIS is alive, people are well trained
- but..
- Information exchange is difficult
- Piracy is the norm
- Source rarely acknowledged

The Honduras data at CIAT

- Standard data
- Biophysical: geology, DEM, climate, land use, etc..
- Socioeconomic: administrative boundaries, selected census data at municipio level
- Other data
- 4 censuses at unit level, stored in Oracle: can be aggregated at any administrative level
- analysis at different scales
- Poverty indices
- 1:50,000 scale topo

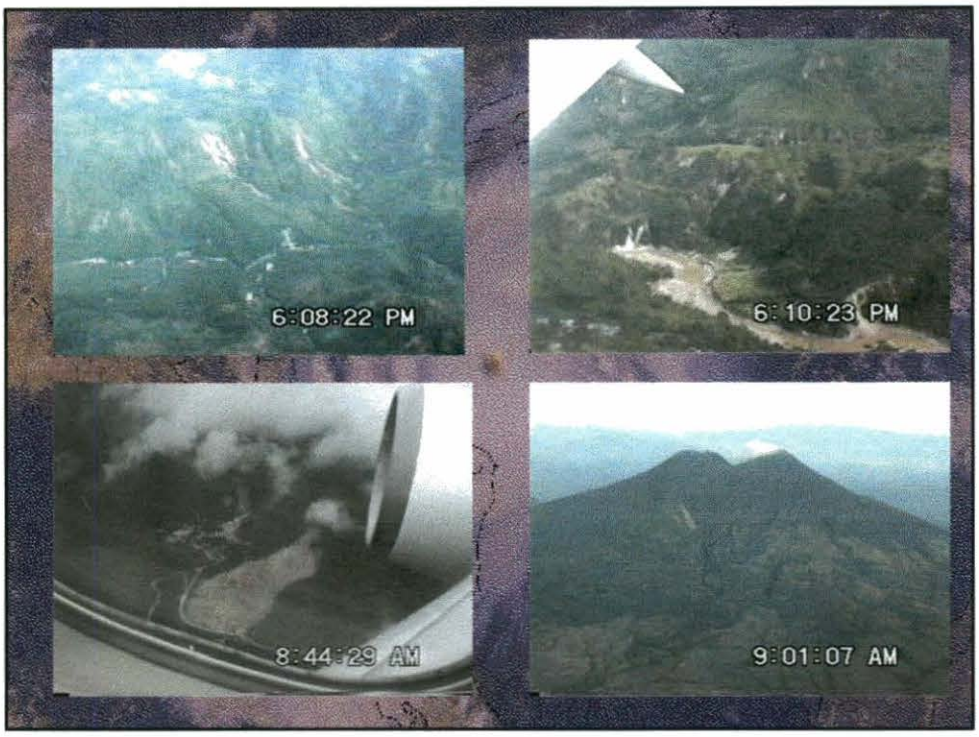
Then comes Mitch...

- 350km wide, 300km/hr winds
- one year of rain in 4 days
- landslides, floods, deaths
- panic and distress
- collapse of the road network, but internet OK!



Damage and loss

Destroyed Bridges:	169
Principal Highways Damaged:	15
Secondary Highways Damaged:	30
Damaged Vecinal Roads:	150
Damaged Access Roads:	200
Damaged Cities :	21
Affected Cities:	60
Destroyed municipalities :	Morolica
Partially destroyed municipalities :	15
Physical Infrastructure Damages:	$1,000 million
Damages to the Capital City:	$500 million
Banana Industry:	$800 million
Sugar Industry:	$5 million
Shrimp Industry:	$150 million
Agroindustry:	$200 million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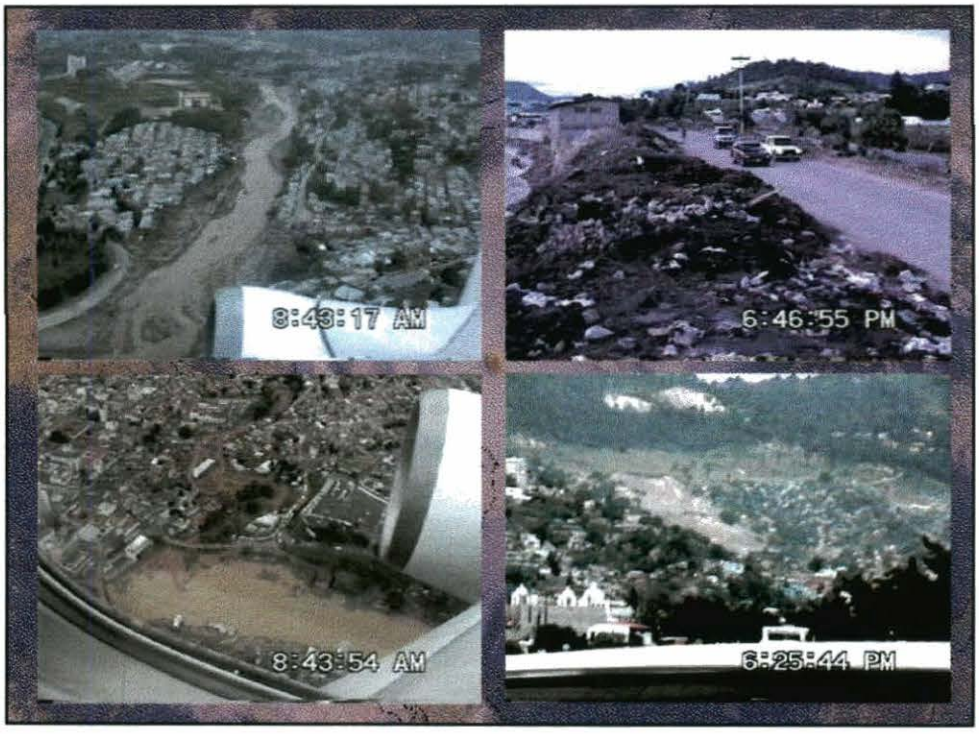
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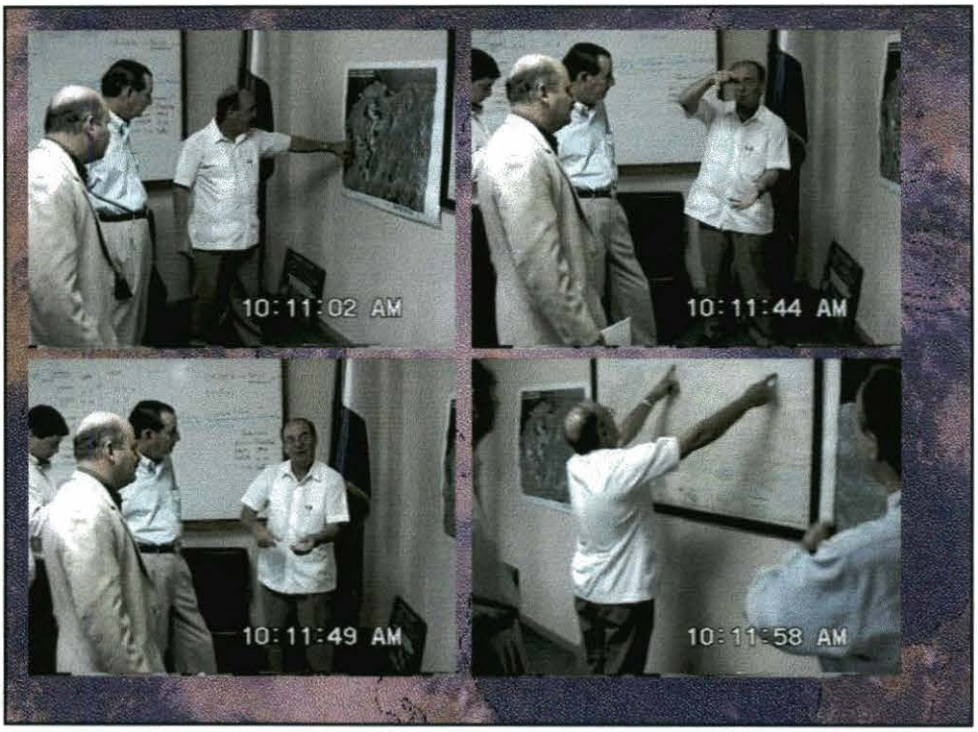
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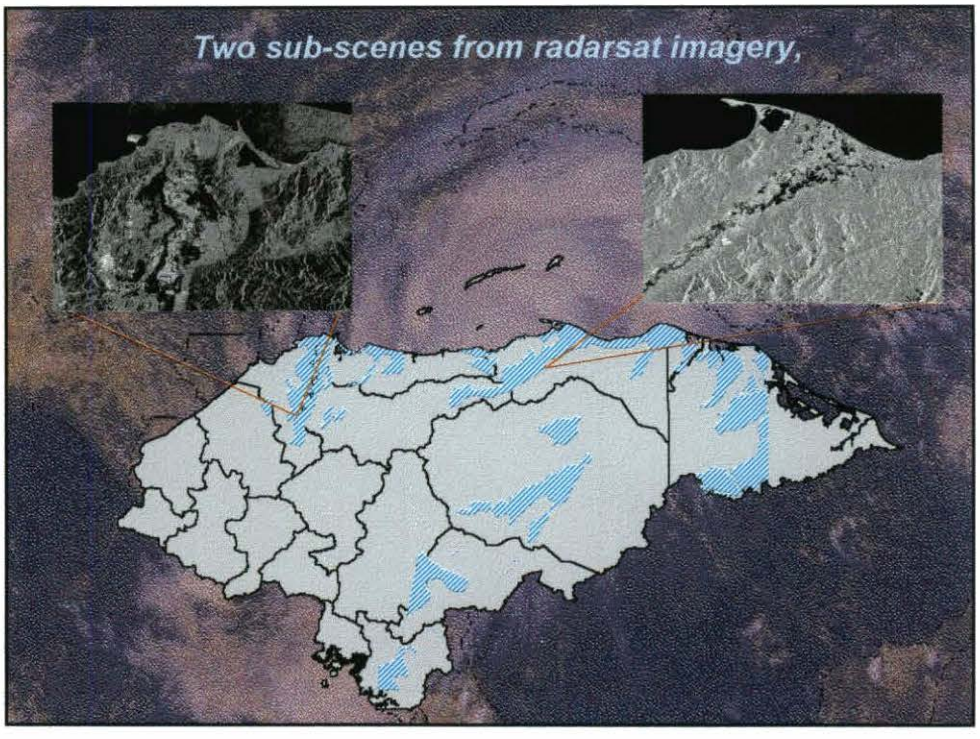
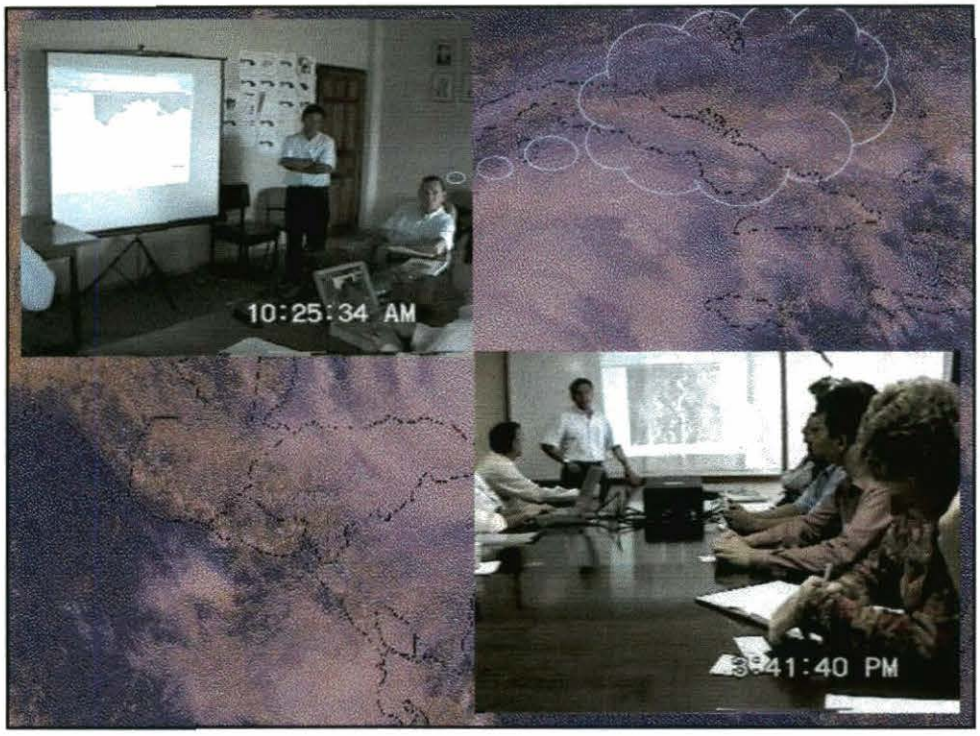
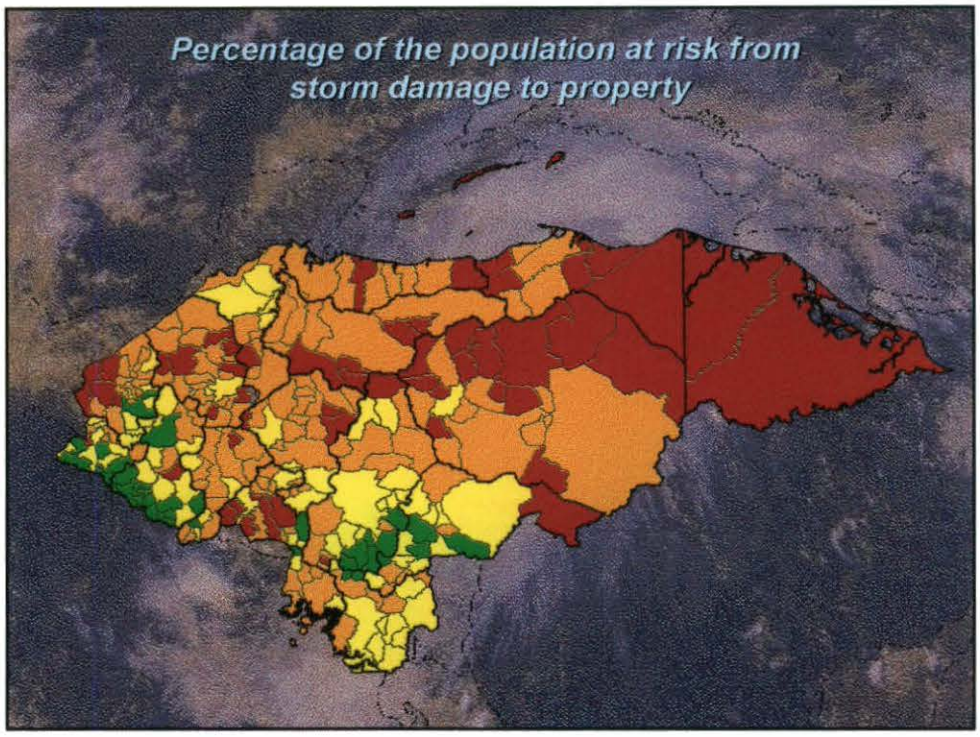
10:12:40 AM

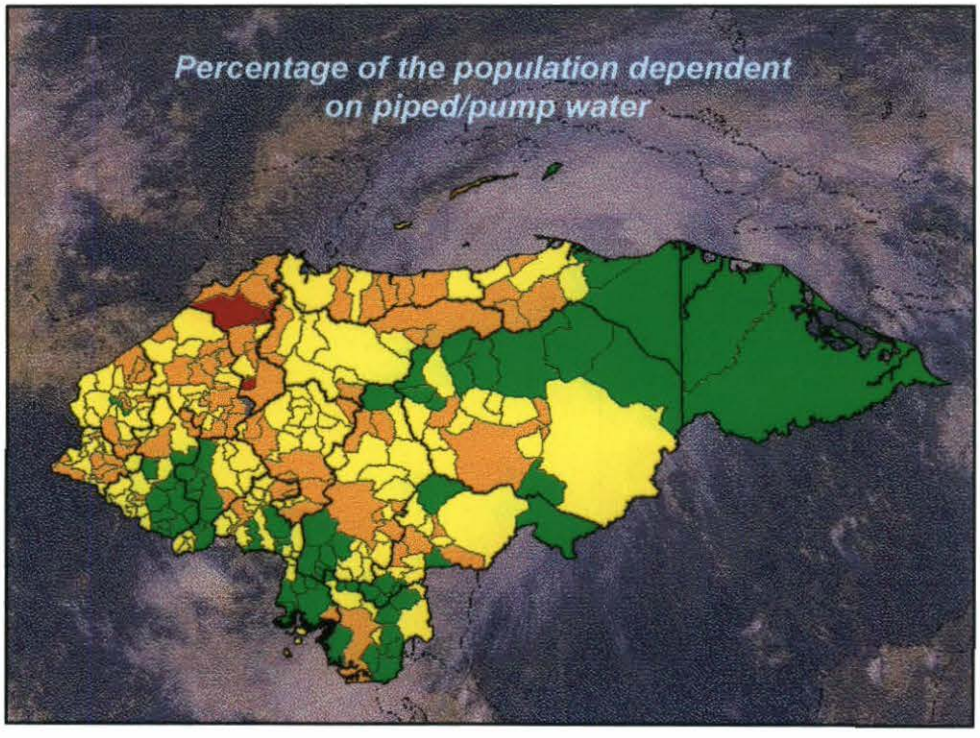

Two sub-scenes from radarsat imagery,



Data that was needed then..

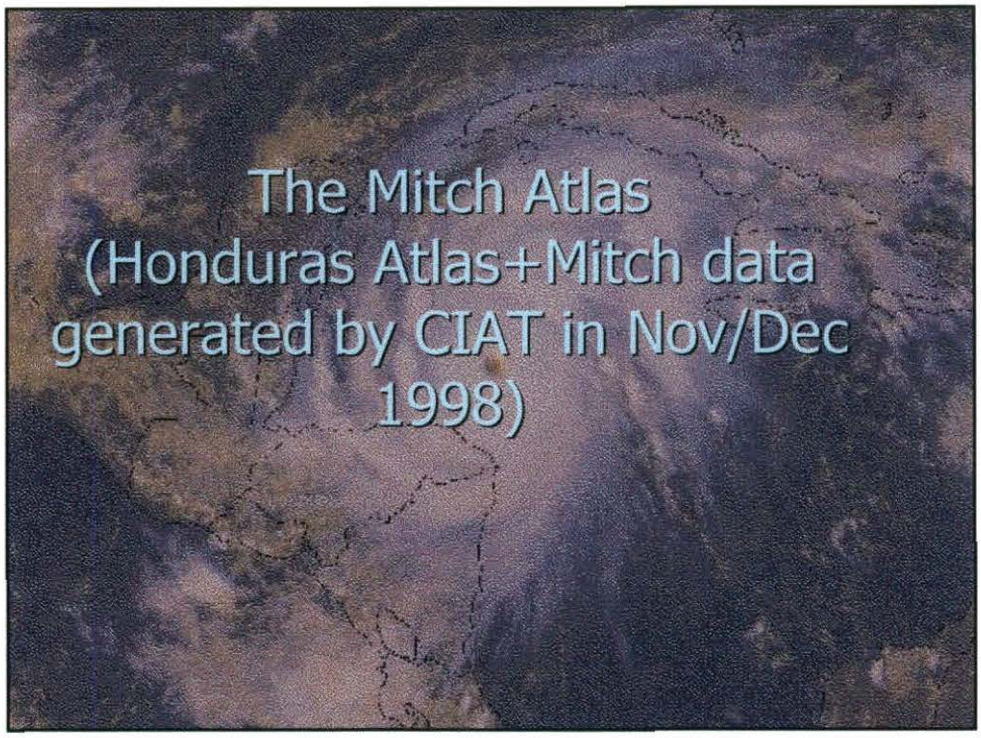
- Radarsat images: floods
- Damages
- Agriculture: crops, irrigation, municipio and village level
- Who/where projects are working
- Hospitals, etc..
- Any data for emergency plans (agricultural and population censuses)

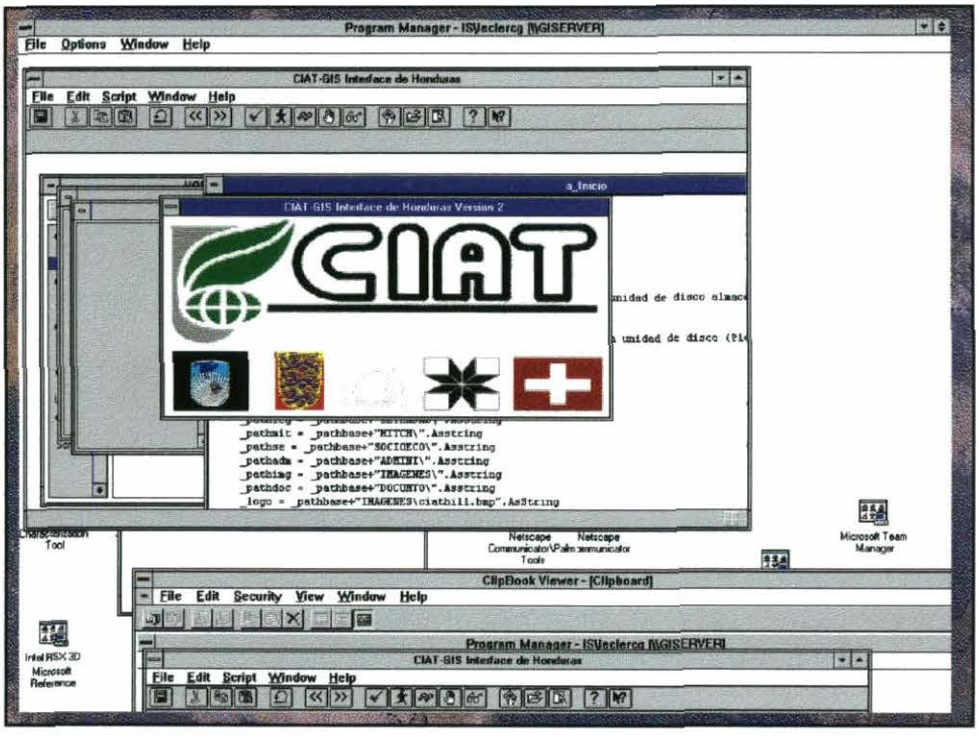

Percentage of the population at risk from
storm damage to property

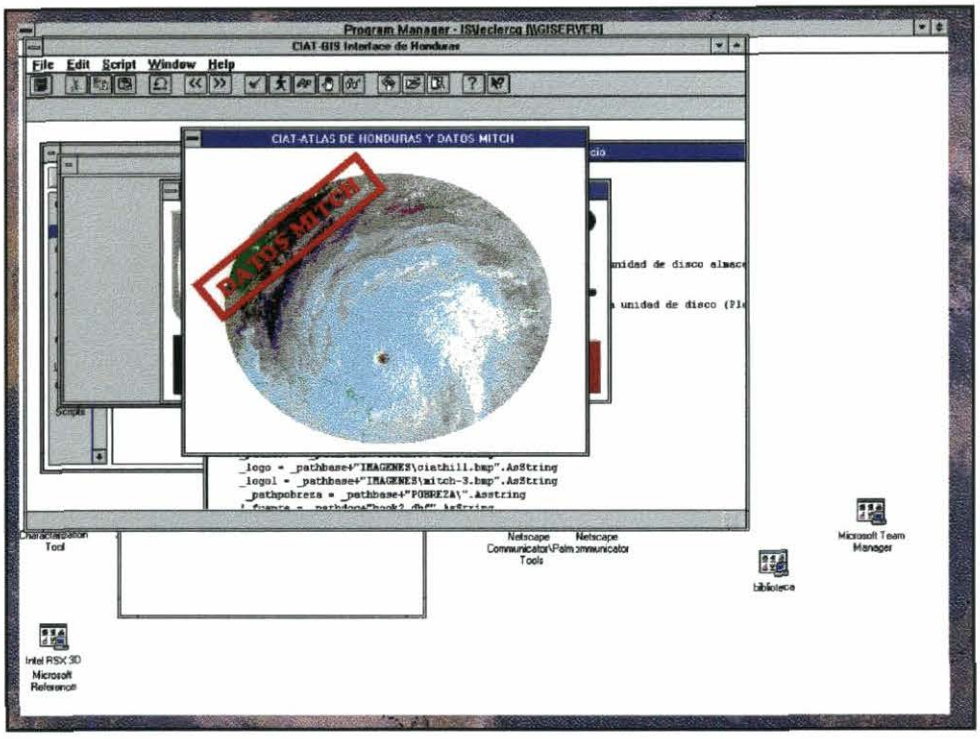

Percentage of the population dependent
on piped/pump water

.. And data needed in the future

- Production post Mitch
- Impact assessment: socio economic and environment
- Watershed management: its alive! (again)
- Utilities
- Restoration of: infrastructure, agricultural production system,
- Aerial photos are preferred because more potential users
- TOOLS:display, queries, overlays...free


The Mitch Atlas
(Honduras Atlas+Mitch data generated by CIAT in Nov/Dec 1998)


Program Manager - IS\jaclercg [\\GISERVER]
File Options Window Help
CIAT-GIS Inteface de Honduras
File Edit Script Window Help
a_Inicio
CIAT-GIS Inteface de Honduras Version 2
CIAT
ClipBook Viewer - [Clipboard]
File Edit Security View Window Help
Program Manager - IS\jaclercg [\\GISERVER]
CIAT-GIS Inteface de Honduras
File Edit Script Window Help


Program Manager - IS\leclercq (\\GISERVER)
CIAT-GIS Interface de Honduras
File Edit Script Window Help
CIAT-ATLAS DE HONDURAS Y DATOS MITCH
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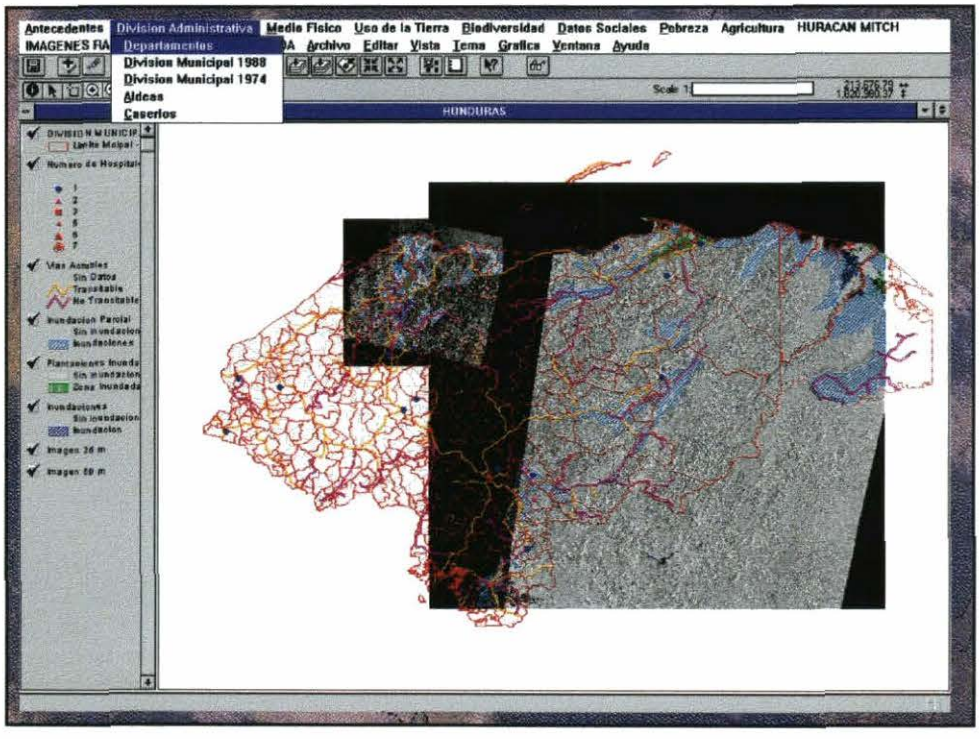
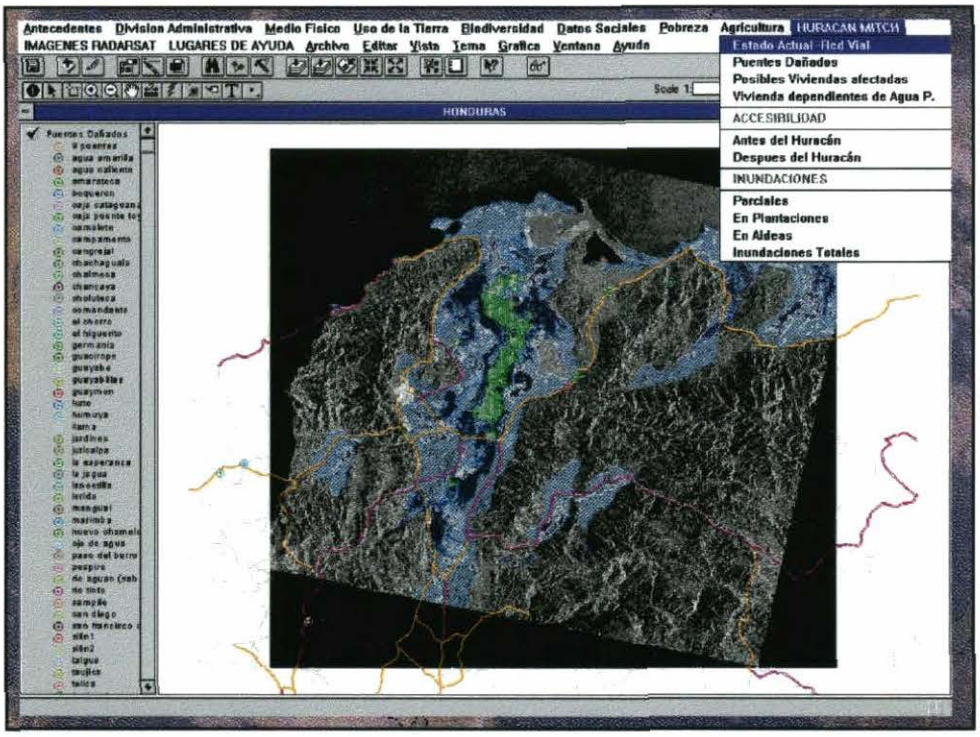
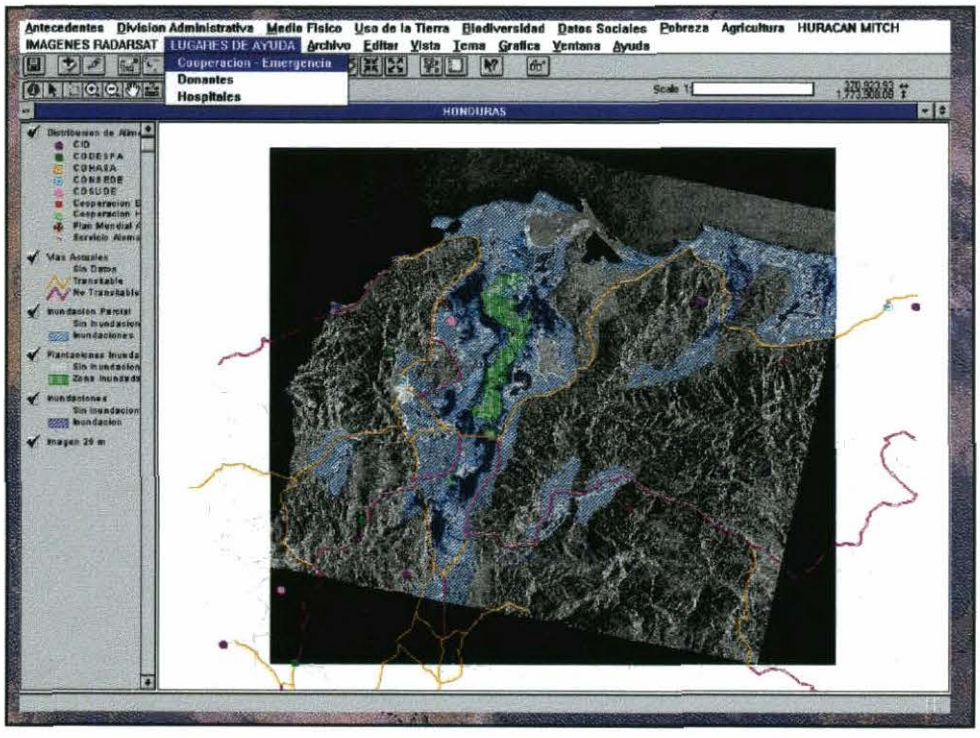
_logol = _pathbase+"IMAGENES\mitch-3.bmp".AsString
_pathpobreza = _pathbase+"POBREZA\".Asstring
Netscape Communicator\Palm Tools
Netscape Communicator
Microsoft Team Manager
biblioteca
Intel RSX 3D Microsoft Reference


Antecedentes
Division Administrativa
Medio Fisico
Uso de la Tierra
Biodiversidad
Datos Sociales
Pobreza
Agricultura
HURACAN MITCH
Departamentos
Division Municipal 1988
Division Municipal 1974
Aldeas
Caseríos
Archivo
Editar
Vista
Tema
Grafica
Ventana
Ayuda
HONDURAS


Antecedentes Division Administrativa Medio Fisico Uso de la Tierra Biodiversidad Datos Sociales Pobreza Agricultura HURACAN MITCH
IMAGENES RADARSAT LUGARES DE AYUDA Archivo Editar Vista Tema Grafica Ventana Ayuda
Estado Actual -Red Vial
Puentes Dañados
Posibles Viviendas afectadas
Vivienda dependientes de Agua P.
ACCESIBILIDAD
Antes del Huracán
Despues del Huracán
INUNDACIONES
Porciales
En Plantaciones
En Aldeas
Inundaciones Totales
HONDURAS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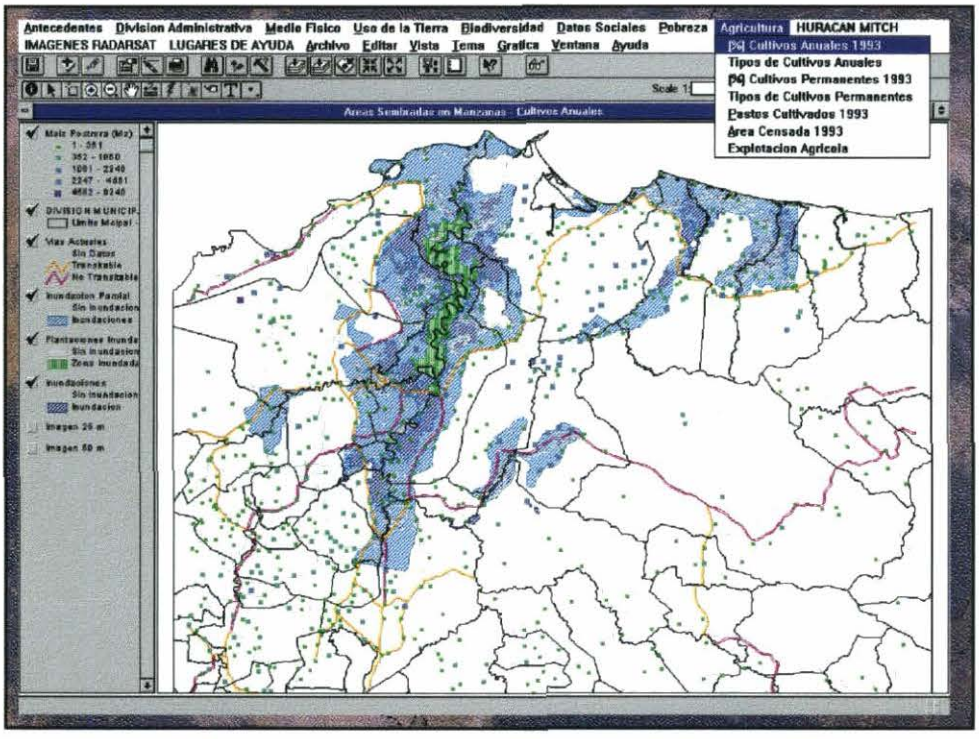
IMAGENES RADARSAT LUGARES DE AYUDA Archivo Editar Vista Tema Grafica Ventana Ayuda
Cooperacion - Emergencia
Donantes
Hospitales
HONDURAS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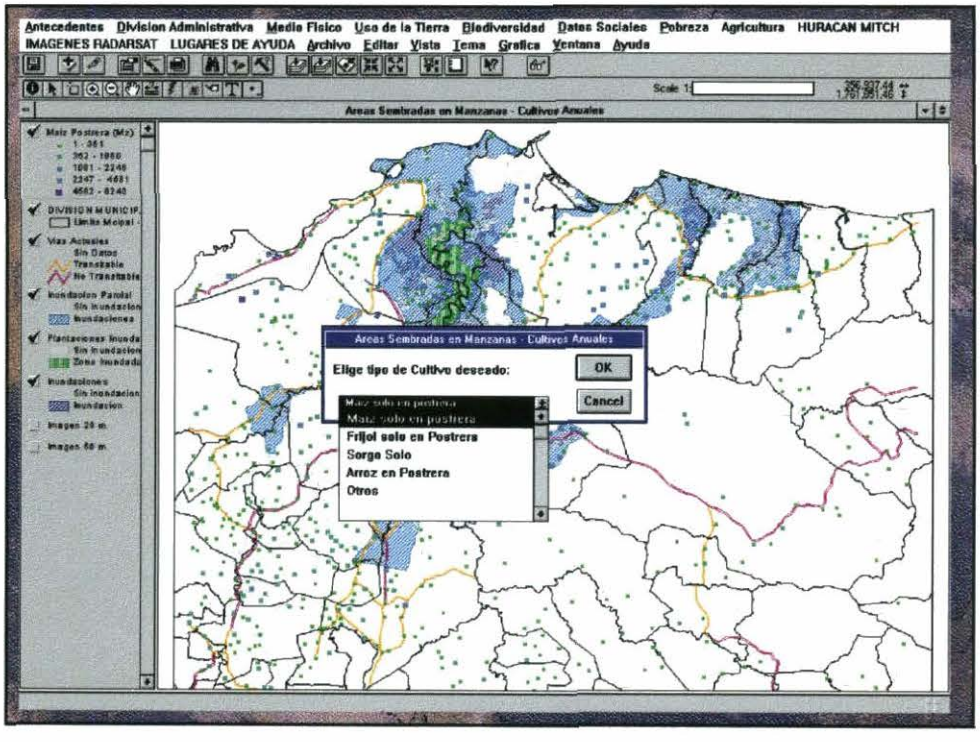
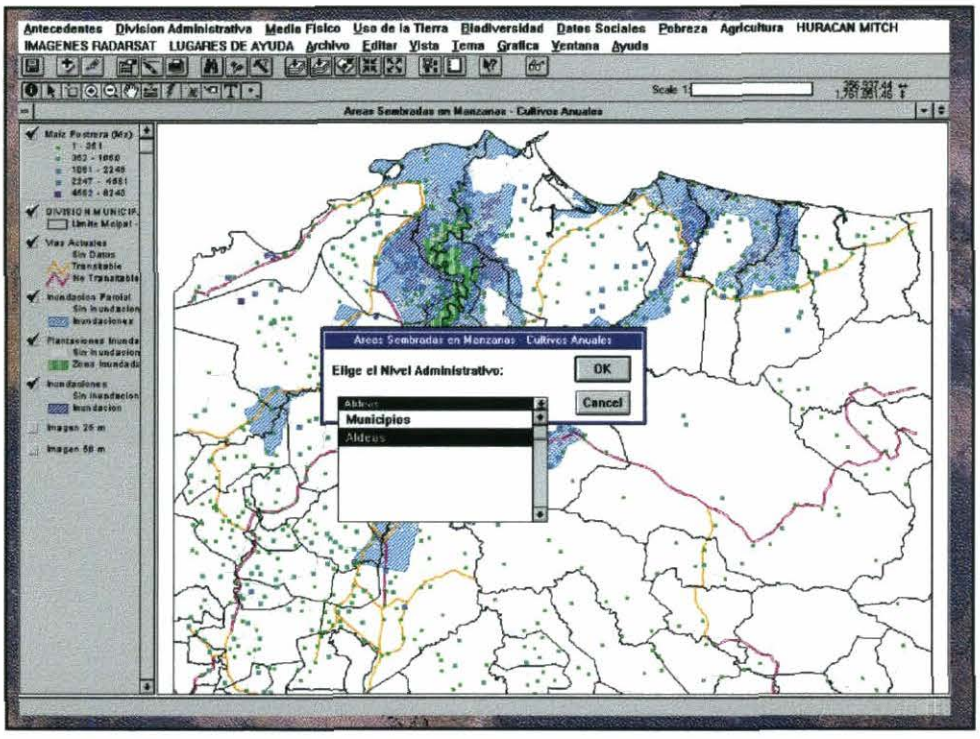
IMAGENES RADARSAT LUGARES DE AYUDA Archivo Editar Vista Tema Grafica Ventana Ayuda
Areas Sembradas en Manzanas - Cultivos Anuales
PQ Cultivos Anuales 1993
Tipos de Cultivos Anuales
PQ Cultivos Permanentes 1993
Tipos de Cultivos Permanentes
Pastos Cultivados 1993
Area Censada 1993
Explotacion Agricola


Antecedentes Division Administrativa Medio Fisico Uso de la Tierra Biodiversidad Datos Sociales Pobreza Agricultura HURACAN MITCH
IMAGENES RADARSAT LUGARES DE AYUDA Archivo Editar Vista Tema Grafica Ventana Ayuda
Areas Sembradas en Manzanas - Cultivos Anuales
Areas Sembradas en Manzanas - Cultivos Anuales
Elige tipo de Cultivo deseado:
OK
Cancel
Maiz solo en postrera
Frijol solo en Postrera
Sorgo Solo
Arroz en Postrera
Otros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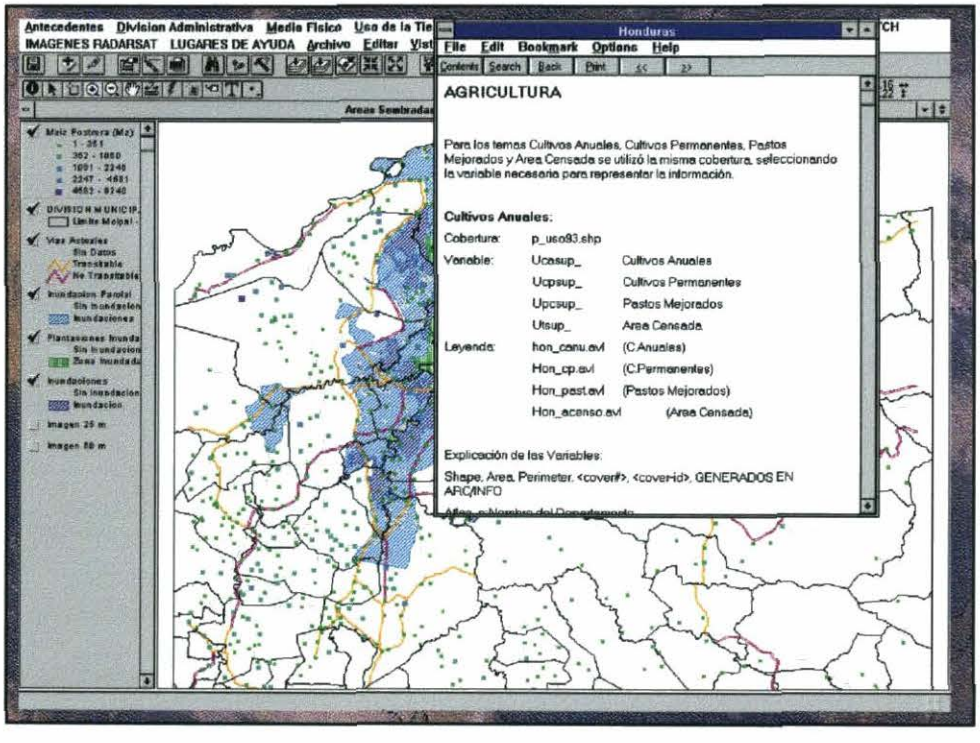
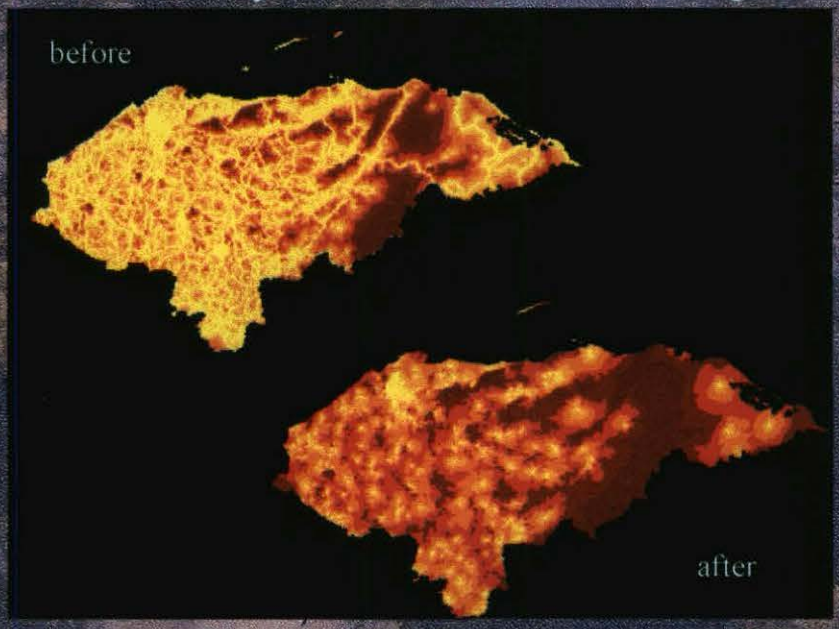
IMAGENES RADARSAT LUGARES DE AYUDA Archivo Editar Vista Tema Grafica Ventana Ayuda
Areas Sembradas en Manzanas - Cultivos Anuales
Areas Sembradas en Manzanas - Cultivos Anuales
Elige el Nivel Administrativo:
OK
Cancel
Aldeas
Municipios
Aldeas


Honduras
File Edit Bookmark Options Help
Contents Search Back Print
AGRICULTURA
Para los temas Cultivos Anuales, Cultivos Permanentes, Pastos Mejorados y Area Censada se utilizó la misma cobertura, seleccionando la variable necesaria para representar la información.
Cultivos Anuales:
Cobertura: p_uso93.shp
Variable: Ucasup_ Cultivos Anuales
Ucpsup_ Cultivos Permanentes
Upcsup_ Pastos Mejorados
Utsup_ Area Censada
Leyenda: hon_canu.avl (C.Anuales)
Hon_cp.avl (C.Permanentes)
Hon_past.avl (Pastos Mejorados)
Hon_acenso.avl (Area Censada)
Explicación de las Variables:
Shape, Area, Perimeter, <cover#>, <cover-id>, GENERADOS EN ARC/INFO

Accessibility (travel time between villages)



Seeds of Hope project (CIAT, CIMMYT, CIP, IPGRI)

- Restore the seeds system (beans, maize, potato)
- Ensure production is maintained
- Minimize genetic erosion
- GIS is used to find the poor, the forgotten, that will receive seed aid.
- Joint work with other seeds projects: GIS integrates (again)
- $$ needed for second year!!! (funding for 1st year obtained from USAID and CIDA: thank you!!)

Lessons learned (1)

- Data is important to make emergency plans
- Informal data channels appear
- data quality is not verified..what is the impact of bad data?
- A lot of demand for maps of any kind!
- Efforts like CIAT's or USGS's are extremely well received
- Atlases work because they integrate
- Constantly Monitor the who/how/where of projects

Lessons learned (2)

- Private sector too new: will give some data but not the software
- Official data is better
- Legal status for the foundation
- Personnel has to have incentives to stay ("consultants" in Nicaragua)
- Open lab will work (we have experienced it!)

A solution that may work

- Creation of a foundation to handle national-level data: the foundation database plus other public data
- Standards, data exchange, updates
- commissioned to provide and integrate data
- Official seal (IGN/Census/Min. Transport, etc..)
- Municipal atlases for larger scale
- Private sector provides value-added products
- User friendly tools fordisplay, query, overlays, ..free

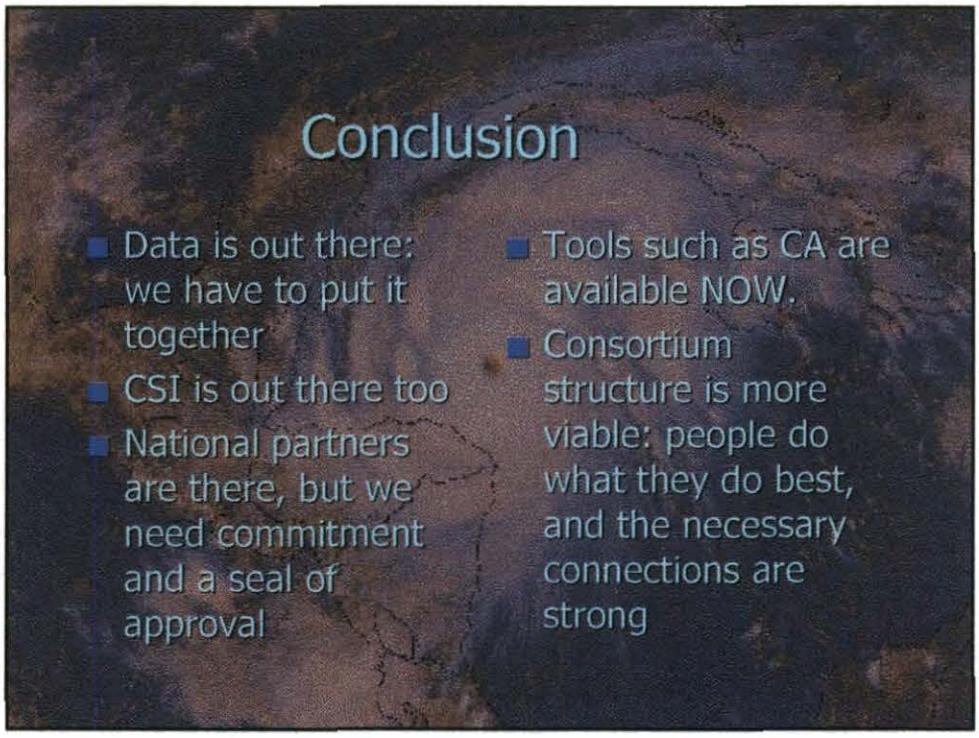
Before we conclude..

- We are not talking about a low-cost solution: this is serious international development business!
- Keep it public: the private sector can do contract work to feed the atlas
- benefits to other sectors are many: impact assessment, education, heath,..
- Best implementing structure: a consortium

To give an idea (example of CIAT partners with GIS focus)

- Census Bureau of 6 Central American, 6 Caribbean countries, Peru, Ecuador and Colombia
- Ministries of Agriculture and Environment of most Tropical American Countries
- University of Florida - ICASA modeling; TAMU (tools)
- UNEP
- USGS (just starting)
- ESRI

- University of Georgia Public/Private Sector Linkages
  - Decision Support Systems, GIS Infrastructure Management, Multi-participant large GIS Database Development - 1Terabyte, Disaster Planning - GEMA Group- 140 systems in field, Multi-center, fast response, low cost Satellite Data-Voice-Video Communications - 2Mbits/sec +, 1.2m dish
- GIS networks: RENASIG, CNG, IGDN, CSI
- National Universities for most LA countries
- CATIE, Costa Rica
- Canadian Center for Remote Sensing
- Jet Propulsion Laboratory
- Japanese Space Agency
- Joint Research Center
- European Space Agency...and many more!


Conclusion
Data is out there: we have to put it together
CSI is out there too
National partners are there, but we need commitment and a seal of approval
Tools such as CA are available NOW.
Consortium structure is more viable: people do what they do best, and the necessary connections are strong