



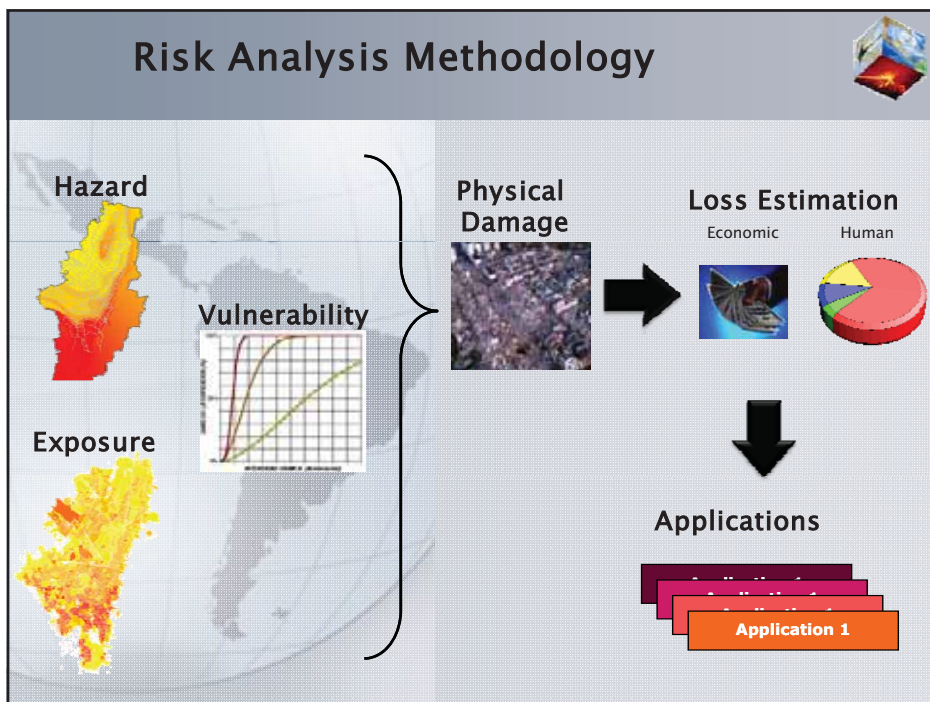
CAPRA
CENTRAL AMERICA PROBABILISTIC RISK ASSESSMENT

EXPOSURE
CHANGES workshop, 22-23 September
Stryszawa (Krakow), Poland

CHANGES
Risk-HVA

ERN
Evaluación de Riesgos Naturales
- América Latina -

The slide features logos for UN, ISDR, and BID at the top. A 3D cube icon with a globe and a volcano is on the left. The background is a map of Central America.



Important Documents



Environmental

- Agriculture reports

Hydrology

- Hurricane reports
- Damage assessment reports and tropical depression, Flooding events

Risks

- Disaster Management plans

Infrastructure

- Electricity - Annual Reports
- Health reports and inventories

Social Aspects

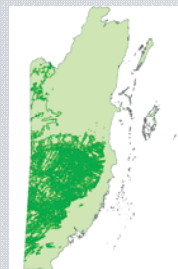
- Poverty report
- Census
- Population and economic information of the country

Important Maps and Data Bases



Overview of country

- Maps of administrative division in the country
- Main cities in each province, villages, settlements
- Atlantic coastline of the country
- Maps of protected areas, natural vegetation, ecosystems and conservation zones.
- Maps of geological and geomorphological zones in the country
- Maps of basins, lakes and rivers
- Maps of the elevation in the country
- Maps of soils
- Map of land use

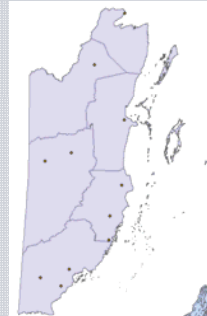
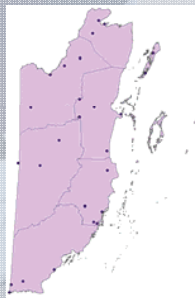
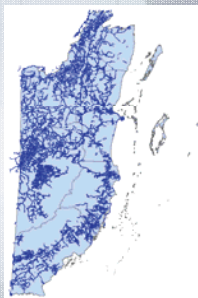


Important Maps and Data Bases



National infrastructure

- Maps of roads and airports
- Water reservoir
- Power plants
- Housing statistics and reports
- Data base of impacts caused by hurricanes



What do we mean by “Exposure”?



Identify and characterize critical assets susceptible of damage

- ✓ Urban buildings and infrastructure
- ✓ Rural constructions
- ✓ Regional and national infrastructure
- ✓ Human exposure

Examples of components at Risk

Buildings (residential, commercial, industrial, health, education, governmental, etc).



Components at Risk

Water production, treatment and distribution systems



Components at Risk

Communication system (roads, bridges)



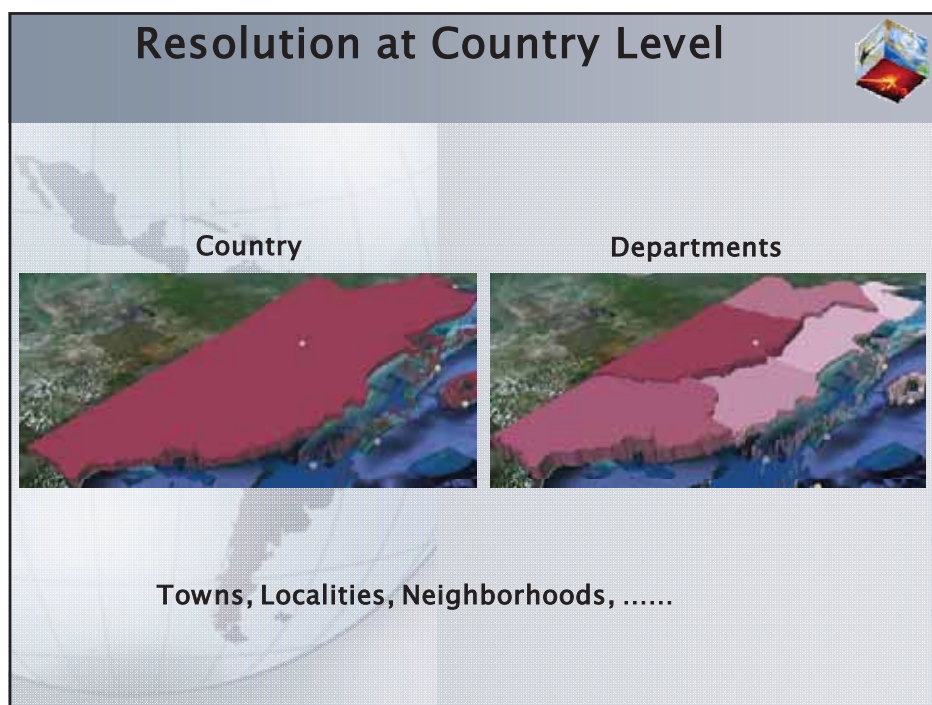
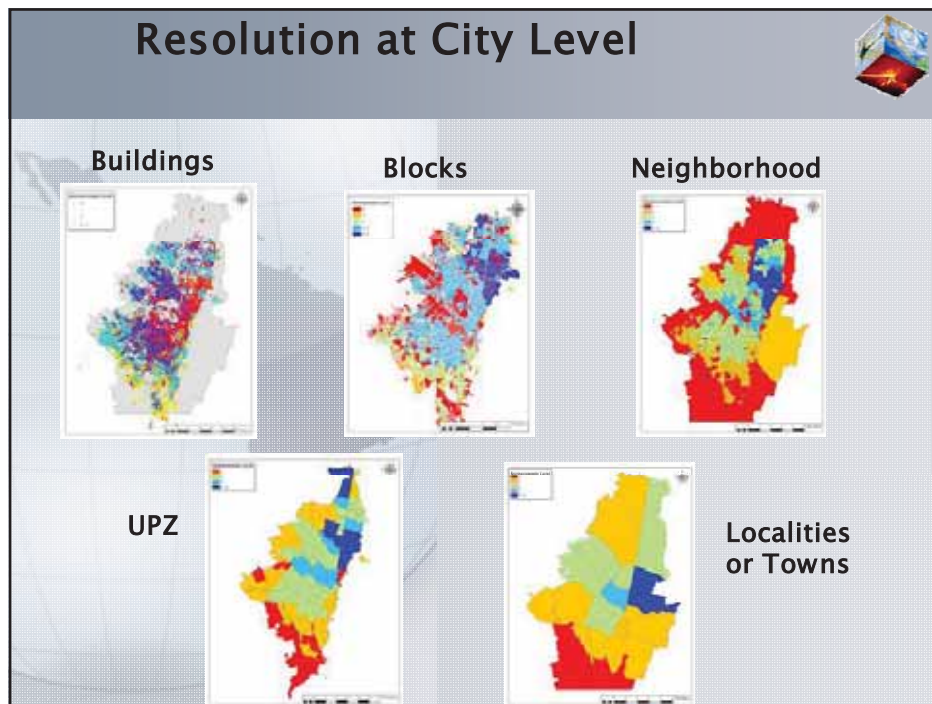
Minimum Information Required

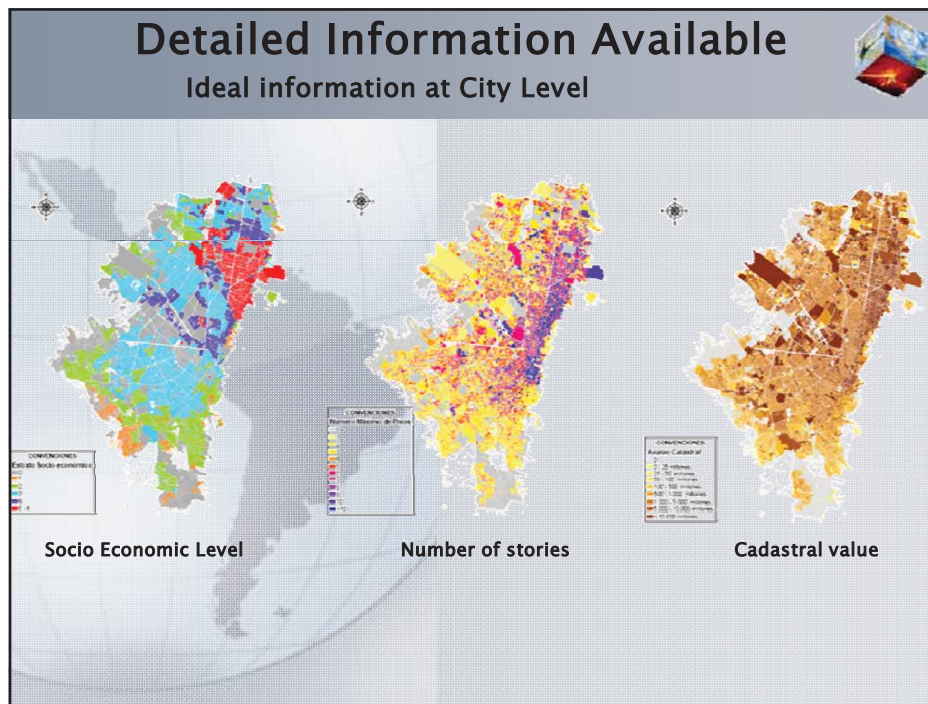


- ✓ ID
- ✓ Geographic location
- ✓ Construction type for vulnerability classification
- ✓ Exposed economic value
- ✓ Human occupation

Format for exposure representation:

→ Shape file (polygons, lines, dots)





Detailed Information Available

- ✓ With no information available, how do we generate basic information?
- ✓ We need:
 - Geographic coordinates
 - Characteristics: size, height, materials, roof, floors, structural type, partitions, photos, others

EXPOSURE MODULE



RESOLUTION

- *Level 1 – Low resolution*
 - *Regional based on population indicators*
- *Level 2 – Intermediate*
 - *Homogeneous zones and indicators*
- *Level 3 – Detailed*
 - *Building by building, individual parameters*

EXPOSURE

Level 1 – Regional resolution

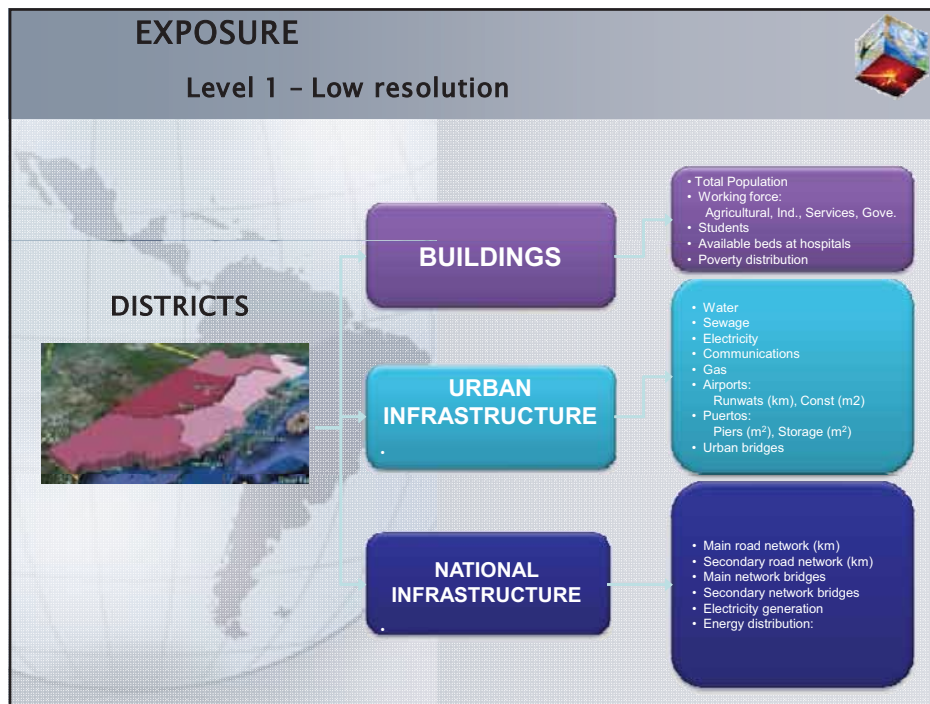


Country level



District level






- EXPOSURE**
Resolution Level 2 and 3
- *CAPRA- InfoPunt- V1.0*
 - *CAPRA- InfoMovil- V1.0*
 - *CAPRA- InfoPolig- V1.0*
 - *CAPRA- InfoLinea- V1.0*

EXPOSURE

Software tools

- CAPRA- InfoPunt- V1.0



The screenshot displays the CAPRA- InfoPunt V1.0 interface. On the left, an aerial map shows a residential area with numerous colored pins (red, yellow, green, blue) indicating data points. On the right, a data entry form is visible, containing fields for 'Departamento', 'Municipio', 'Código Postal', 'Calle', 'Número', 'Tipo de Edificio', 'Tipo de Uso', 'Tipo de Construcción', 'Materiales', 'Fecha de Construcción', 'Tipo de Suelo', 'Tipo de Cimentación', 'Tipo de Estructura', 'Tipo de Fachada', 'Tipo de Ventanas', 'Tipo de Puertas', 'Tipo de Techos', 'Tipo de Pavimentos', 'Tipo de Muebles', 'Tipo de Iluminación', 'Tipo de Calefacción', 'Tipo de Aire Acondicionado', 'Tipo de Ventilación', 'Tipo de Humidificación', and 'Tipo de Otros'. A 'Guardar' button is located at the bottom of the form.

EXPOSURE

Software tools

- CAPRA- InfoMovil- V1.0



The screenshot displays the CAPRA- InfoMovil V1.0 interface. On the left, a mobile phone is shown with the software interface on its screen. On the right, a data entry form is visible, containing fields for 'ID Registro', 'Ubicación', 'Número de Pisos', 'Tipo de Edificio', 'Tipo de Construcción', 'Foto 1', 'Foto 2', 'Foto 3', 'Dirección', 'Posición', and 'Observación'. An 'Insertar registro' button is located at the bottom of the form. On the right side of the form, there are three 'Examinar' buttons corresponding to the photo fields. On the right, a map shows a residential area with numerous colored pins (red, yellow, green, blue) indicating data points.

EXPOSURE

Software tools




- CAPRA- InfoMovil- V1.0

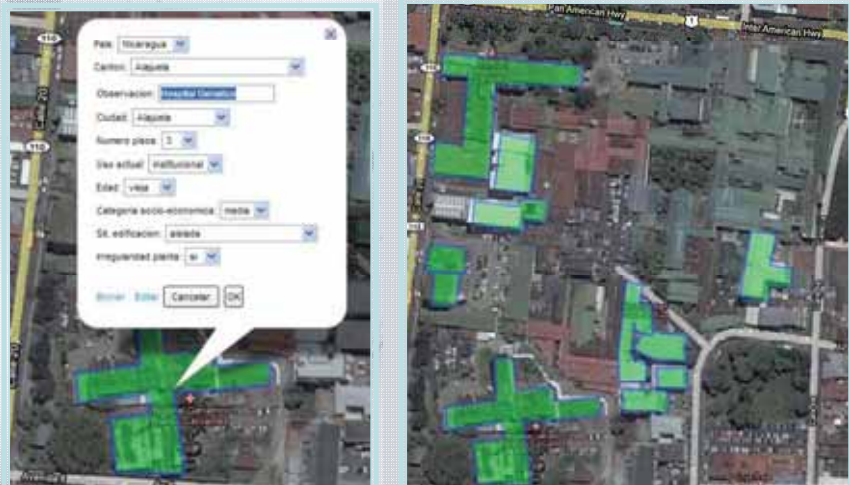


EXPOSURE


Software tools




- CAPRA- InfoPolig- V1.0



EXPOSURE
Software tools




- *CAPRA- InfoPolig- V1.0*

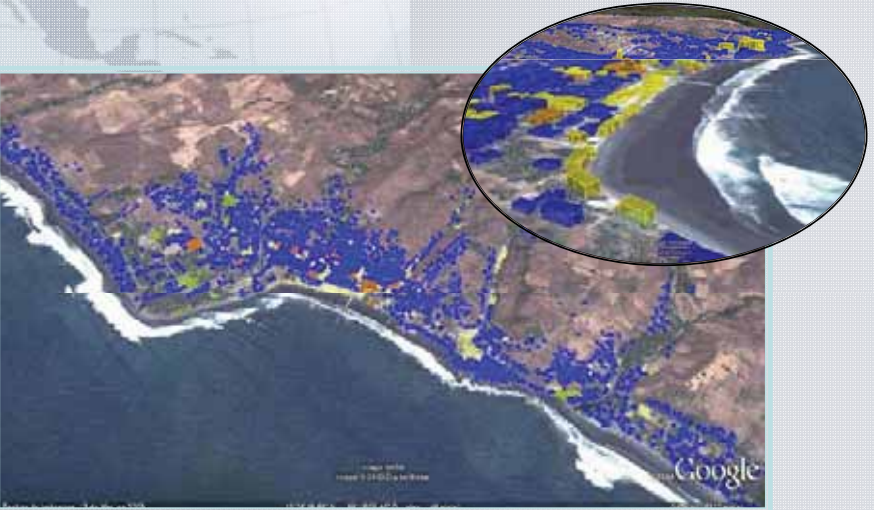


The image displays two maps illustrating exposure analysis. The left map shows a grid overlay on a satellite image, with blue and red areas indicating exposure levels. The right map shows a 3D perspective view of a city, with blue and red areas indicating exposure levels.

EXPOSURE
Software tools



- *CAPRA- InfoPolig- V1.0*

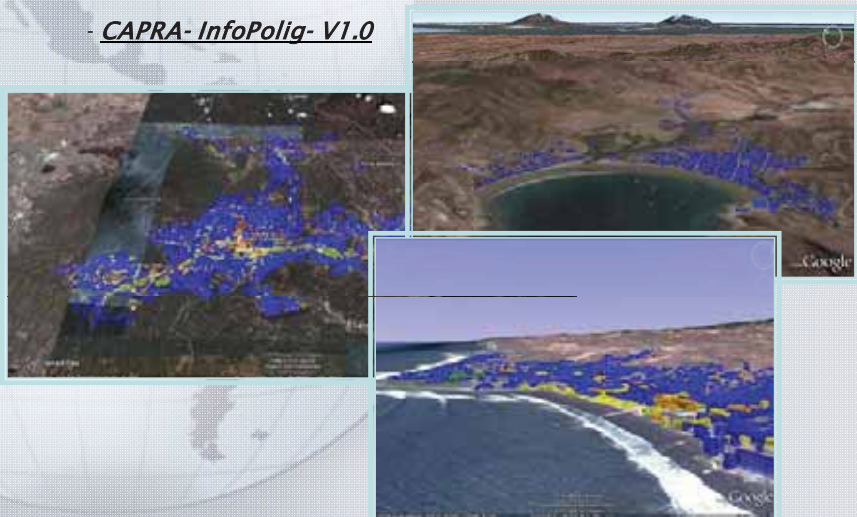


The image displays a satellite map with exposure analysis overlay. The map shows a coastal area with blue and red areas indicating exposure levels. A circular inset shows a zoomed-in view of a coastal area, highlighting the exposure analysis results.

EXPOSURE

Software tools

- CAPRA- InfoPolig- V1.0

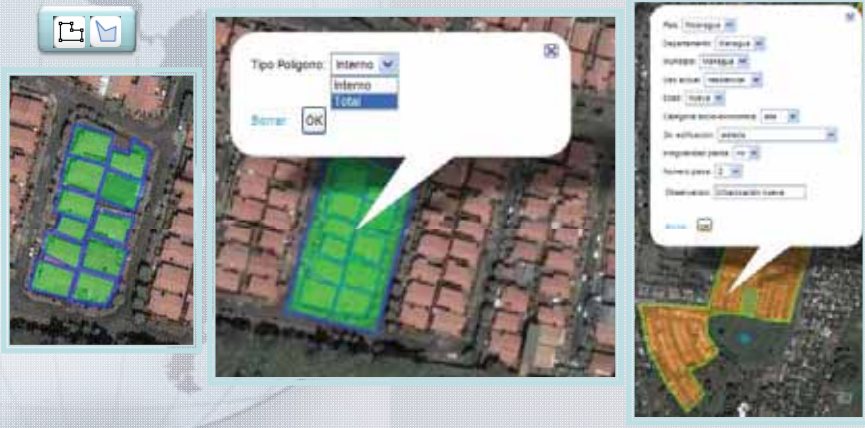


The image displays three screenshots of the CAPRA- InfoPolig V1.0 software. The top-left screenshot shows a 3D terrain model with a large blue polygon overlaid on a landscape. The top-right screenshot shows a similar 3D terrain model with a blue polygon and a yellow polygon overlaid. The bottom-center screenshot shows a 3D terrain model with a blue polygon and a yellow polygon overlaid, viewed from a different angle. A small globe icon is visible in the top right corner of the slide.

EXPOSURE

Software tools

- CAPRA- InfoPolig- V1.0



The image displays three screenshots of the CAPRA- InfoPolig V1.0 software. The left screenshot shows a 2D aerial map with a green polygon overlaid. The middle screenshot shows a 2D aerial map with a green polygon overlaid, and a dialog box for polygon properties. The right screenshot shows a 2D aerial map with an orange polygon overlaid, and a dialog box for polygon properties. A small globe icon is visible in the top right corner of the slide.

Dialog box 1 (middle):

Tipo Poligono: Interno
Interno
Total

Sierra: OK

Dialog box 2 (right):

Plan: (selecciona) [X]
Departamento: (selecciona) [X]
Municipio: (selecciona) [X]
Código catastral: (selecciona) [X]
Código: (selecciona) [X]
Código secundario: (selecciona) [X]
Si es edificio: (selecciona) [X]
Ingeniería por: (selecciona) [X]
Número parcelas: (selecciona) [X]
Observación: (selecciona) [X]

EXPOSURE

Software tools



- *CAPRA- InfoPolig- V1.0*



EXPOSURE

Software tools



- *CAPRA- InfoPolig- V1.0*



EXPOSURE

Field format for data gathering

FORMATO CARACTERIZACION TIPOS ESTRUCTURALES

País: Perú Fecha: 20/08/09
 Ciudad: Lima Metropolitana, Callao y Arequipa Elaboró: SSC

No: 122

Nombre del Sistema: Adobe (AS)

Características Generales

Rango número de pisos: 1 Dimen. en planta (gms): 6 x 10
 Altura típica de entrepiso: 2.5 Edad aproximada: entre 0 y 20 años

Sistema estructural:	Materia:	Dinámica de entrepiso
<input type="checkbox"/> Pórticos resistentes a momentos	<input type="checkbox"/> Concreto reforzado	<input type="checkbox"/> Rígido
<input type="checkbox"/> Pórticos y muros	<input type="checkbox"/> Acero	<input type="checkbox"/> Flexible
<input type="checkbox"/> Muros estructurales	<input type="checkbox"/> Madera	
<input type="checkbox"/> Paneles perimetrales de concreto	<input type="checkbox"/> Adobe	
<input type="checkbox"/> Otro: _____	<input type="checkbox"/> Concreto prefabricado	

Cubierta

<input type="checkbox"/> Placa de concreto	<input type="checkbox"/> Placa	<input type="checkbox"/> Estajo y conexiones
<input checked="" type="checkbox"/> Taja de Barro	<input type="checkbox"/> Cercha	<input type="checkbox"/> Buzo
<input type="checkbox"/> Taja asbesto-cemento	<input type="checkbox"/> Luz cubierta: 2.5 - 3 m	<input type="checkbox"/> Regular
<input type="checkbox"/> Taja zinc	<input type="checkbox"/> Ang. de inclinación: 0 - 15°	<input type="checkbox"/> Malo
<input type="checkbox"/> Taja metálica	<input type="checkbox"/> Número de aguas: 0	
<input type="checkbox"/> Otro: _____		

Elementos dominantes de Fachada	Estado y calidad fachada
<input type="checkbox"/> Ladrillo	<input type="checkbox"/> Bueno
<input type="checkbox"/> Pañete	<input checked="" type="checkbox"/> Regular
<input type="checkbox"/> Prefabricados	<input type="checkbox"/> Malo
<input type="checkbox"/> Pinturas resistentes	
<input type="checkbox"/> Vidrios	
<input type="checkbox"/> Madera	
<input type="checkbox"/> Adobe	
<input type="checkbox"/> Bahareque	
<input type="checkbox"/> Otro: _____	

Muros divisiones	Acabado de pisos divisiones
<input type="checkbox"/> Mampostería	<input checked="" type="checkbox"/> Concreto
<input type="checkbox"/> Madera	<input type="checkbox"/> Madera
<input type="checkbox"/> Prefabricado concreto	<input type="checkbox"/> Tablas
<input type="checkbox"/> Drywall (cartón)	<input type="checkbox"/> Tapete
<input type="checkbox"/> Divisiones tiradas	
<input type="checkbox"/> Adobe o tierra	



FORMATO CARACTERIZACION TIPOS ESTRUCTURALES

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Fotos

Esquemas



Observaciones

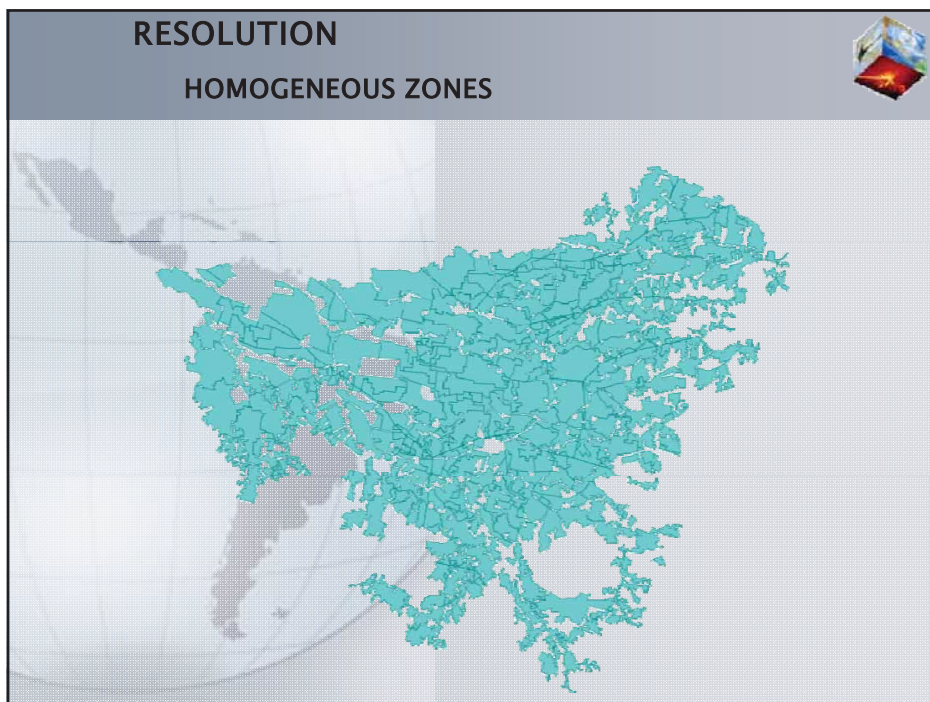
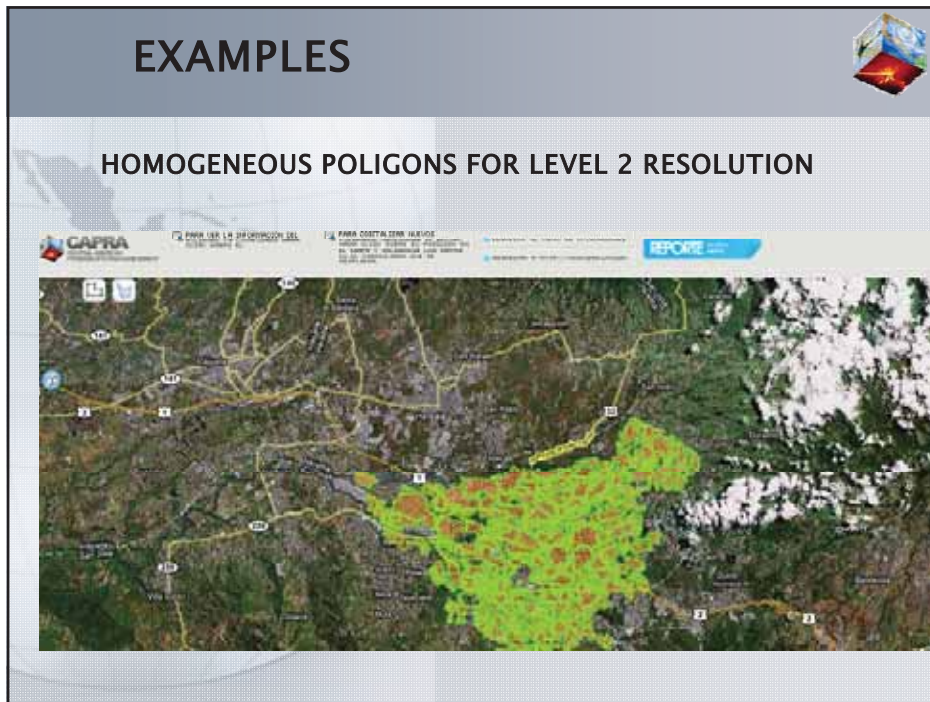
Ejemplo: 1 piso con techos de barro, muros de adobe NNE bajo.

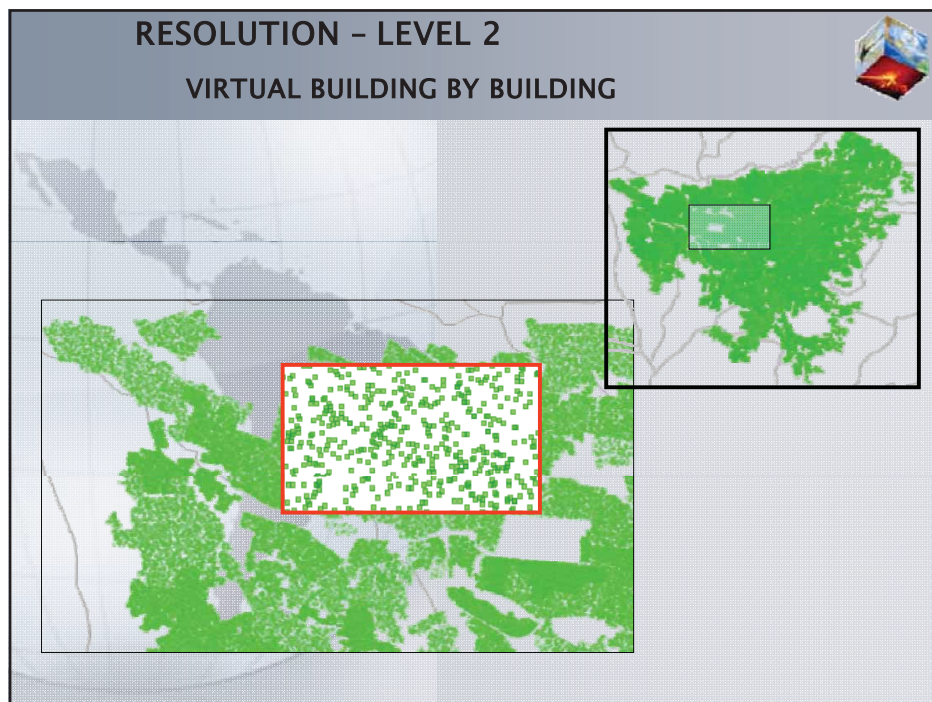
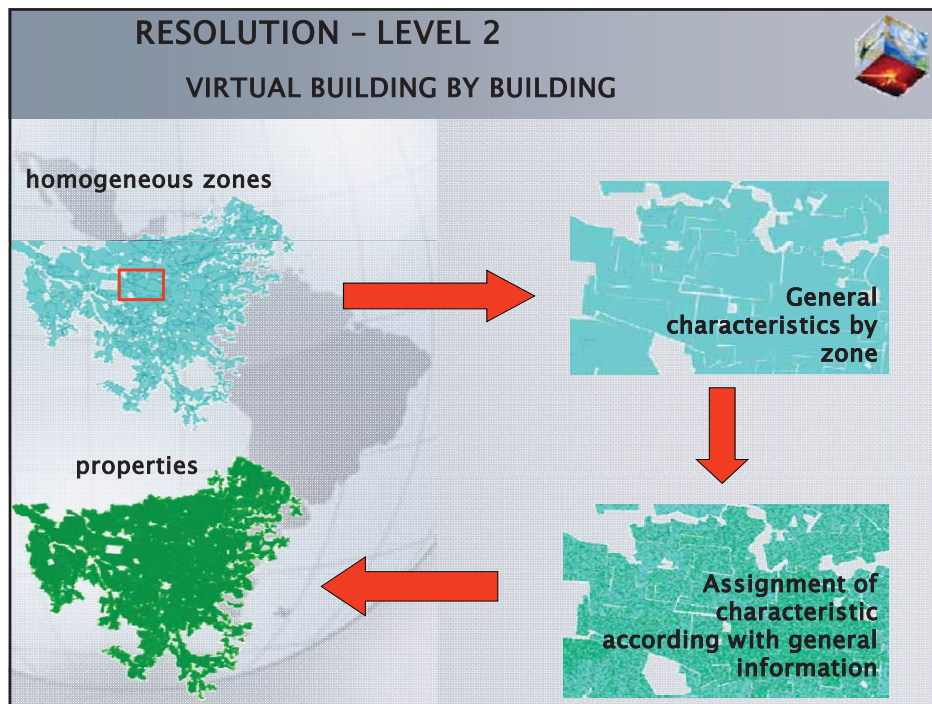
EXPOSURE

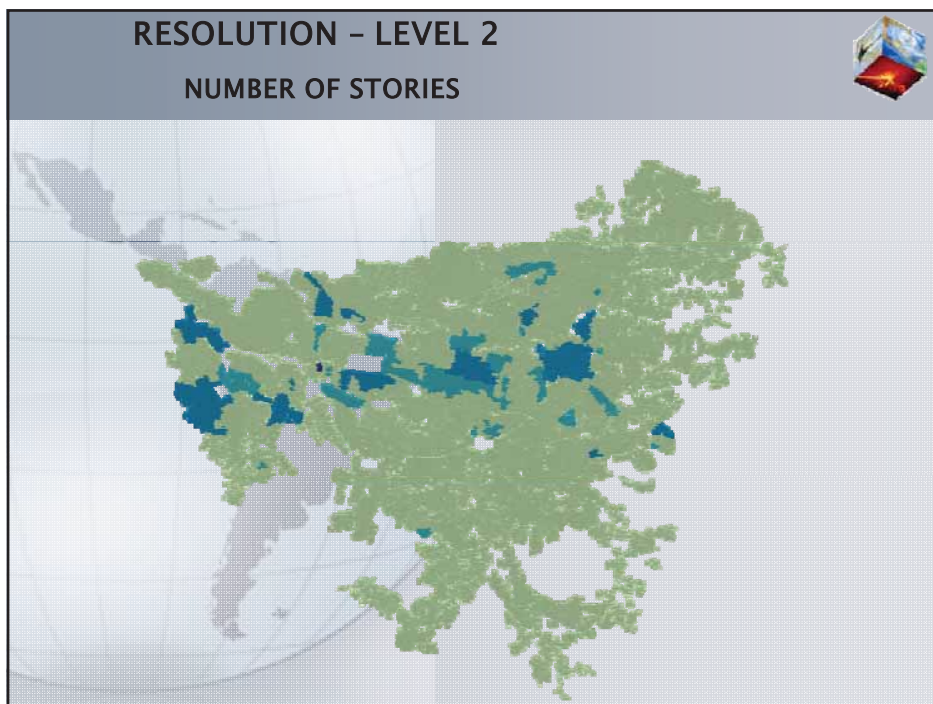
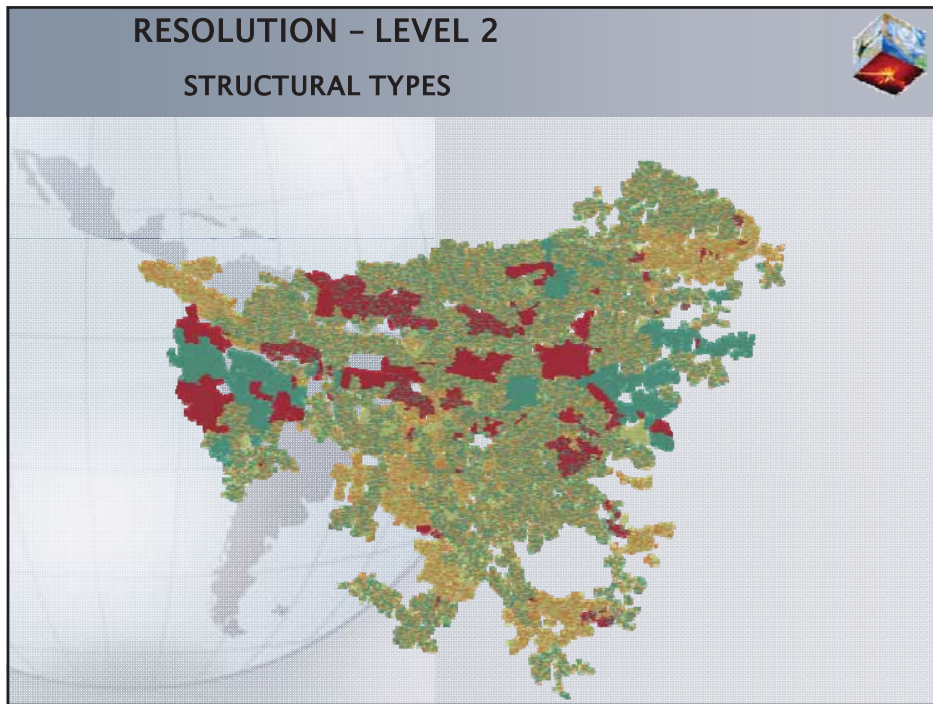
Software tools

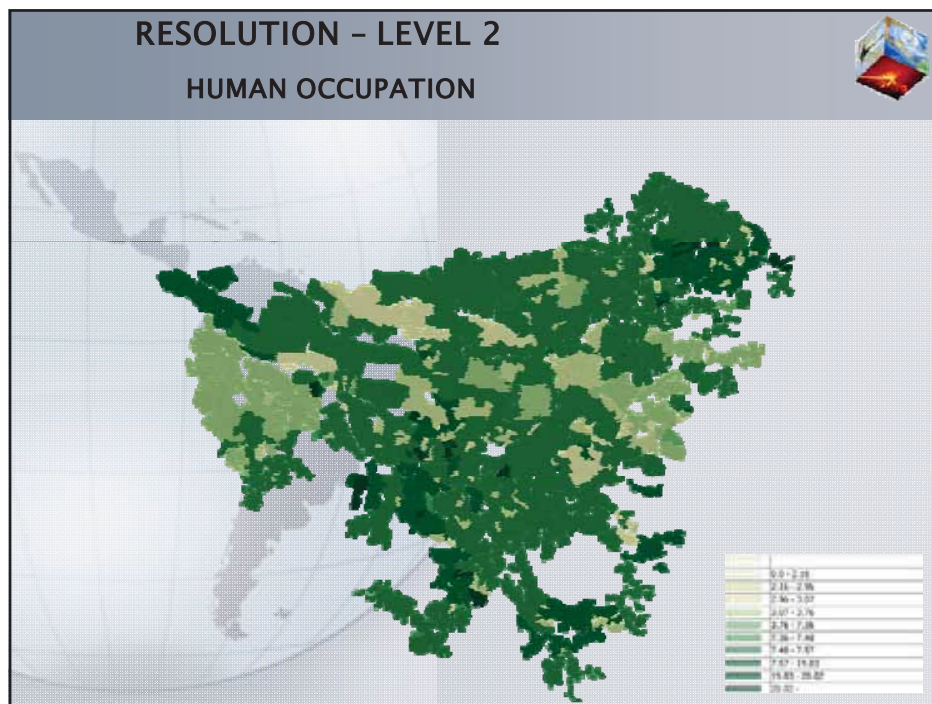
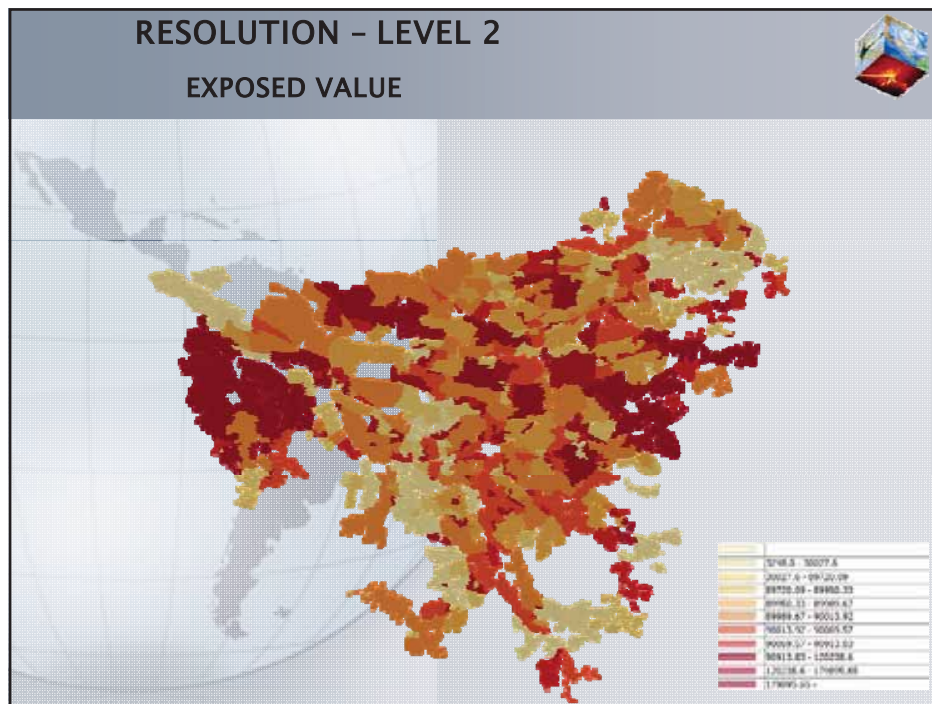
Level 3 - High resolution









RESOLUTION - LEVEL 1

Examples



VIRTUAL CITY 2- D



RESOLUTION - LEVEL 1

Examples



VIRTUAL CITY 3- D



