

❖ Land Use Planning and Its Impacts

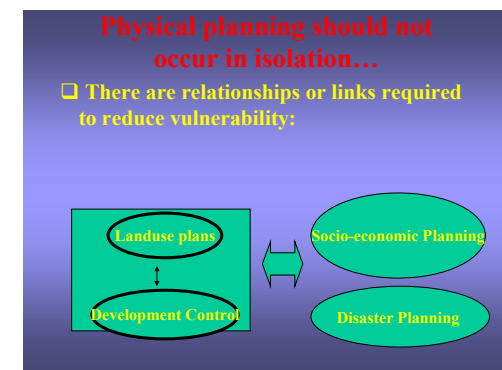
Land use is planned through a hierarchy of planning instruments:

- National Physical Development Plans;
- Regional Plans (for parts of a country);
- Local Area or Master Plans;
- Coastal Zone Management (CZM) Plans;
- Integrated Development Plans;
- Forestry and Protected Area Development or Management Plans

Of these, the CZM plans have been the most relevant in dealing with natural hazard impacts and coastal vulnerability, with building setback from the shoreline being an important policy result of coastal planning. Other plans have varying degrees of success in organizing land use and economic growth in the context of space and in reducing human impact on the environment. However, critical flaws persist within basic physical planning models. For example the typical National Physical Development Plan (NPDP), despite recent experiences with natural hazards in the region (and perhaps influenced by constraints of land tenure, land value and convention), still encourages:

- A predominance in the allocation beach land and coastlines to tourism development;
- Housing expansion in steep and narrow drainage basins
- Settlement in flood prone areas;
- Continued urbanization of low lying coastal areas;
- Density standards that further encourage horizontal rather than vertical dominance of buildings. This results in high building to plot cover ratios, which may exacerbate flood effects in hazard prone areas.

Figure 7: Relationships required to reduce vulnerability



❖ Planning Standards and Building Codes

Adherence to planning standards and building codes reduces the vulnerability of buildings to various hazards. Across the region standards are unevenly applied because of one or a combination of factors, namely:

- Proposed building standards used by many countries do not have statutory effect because they have not been passed into law;
- Caribbean Uniformed Building Codes (CUBIC) proposed for adoption in the region are yet to be fully applied in many countries;
- A high percentage of buildings are constructed without planning approval;
- In some countries government buildings are not regulated by law for compliance with building standards and codes;
- A high percentage of residential and government buildings are not insured and therefore hurricane resistant standards applied by insurance companies as the basis for giving rebates on building insurance premiums do not apply;
- Standards regulating the finished floor heights of buildings in relation to storm surge and flood levels for agreed design storms are not being enforced by regulatory bodies; neither are they widely used by insurance companies in computing insurance premiums.

Standards to reduce vulnerability of critical building components are more likely to be enforced by regulatory agencies and applied by insurance companies (with respect to insurance rebates) in countries that recently experienced hurricanes. Even then, enforcement or application is not always done with regularity (Table 4).



Photo 9: House vulnerable to hurricanes

Table 4
Standards of Selected Building Components Enforced or Applied by Regulatory Agencies and Insurance Companies

Item	Source of Standard or Regulation			Source of Hazard Impact				Comments
	Planning Authority	Other Regulator Body	Insurance Company	Wind	Flood	Storm Surge	Seismic	
Roof Pitch <input type="checkbox"/> Pitch <input type="checkbox"/> Hurricane Clips <input type="checkbox"/> Adequate Structure	*? *	*? *	* * *	* *			*	Require pitch >20°
Shutters <input type="checkbox"/> Doors <input type="checkbox"/> Windows			* *	* *				Shutters required for glass openings and can be wooden, aluminum or other material
Foundation Reinforcement	*	*	*	*	*		*	
Beams, other structure members	*	*	*	*	*		*	
Floor height AMSL	*?	*?	*?			*		
Floor height flood levels of design storm	*?	*?	*		*			
Floor level below grade			*?		*	*	*	Water proofing required to reduce water penetration through walls when water table rises

(Note: The question sign indicates irregularity in application of standard)

