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Sustainable Land Use Practices

Reducing Vulnerability to Catastrophic Rain
Events.

Hurricane Mitch Case Study



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- <http://www.youtube.com/watch?v=aNaXdLWt17A&feature=fvst>



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What is USAID?

- The US Agency for International Development – non military foreign aid.
 - **Economic growth** – microfinance, improved investment climate
 - **Environment** – Protected areas, clean water, best management practices
 - **Health and education** – Vaccinations, nutrition, schools, HIV prevention
 - **Democracy** – Election monitoring, crime prevention
 - **Humanitarian relief** – Tsunami, Haiti, Darfur, etc.



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Why USAID?

- Reduce poverty,
- Reduce vulnerability to disease, crime, and natural disasters.
- Improve domestic and regional security
- Stable governments.



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Central America has a long history of floods – Over 20 storms with 25+ fatalities since named storms began in 1945

- Hurricane Stan 2005
- Hurricane Felix 2007





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Heavy rain falling on poorly managed land leads to landslides

- Costa Rica 2010
- El Salvador 2009





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Some examples of poor management

- Slash and burn agriculture
- Extensive grazing
- Unplanned urban sprawl





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Soils become susceptible to erosion

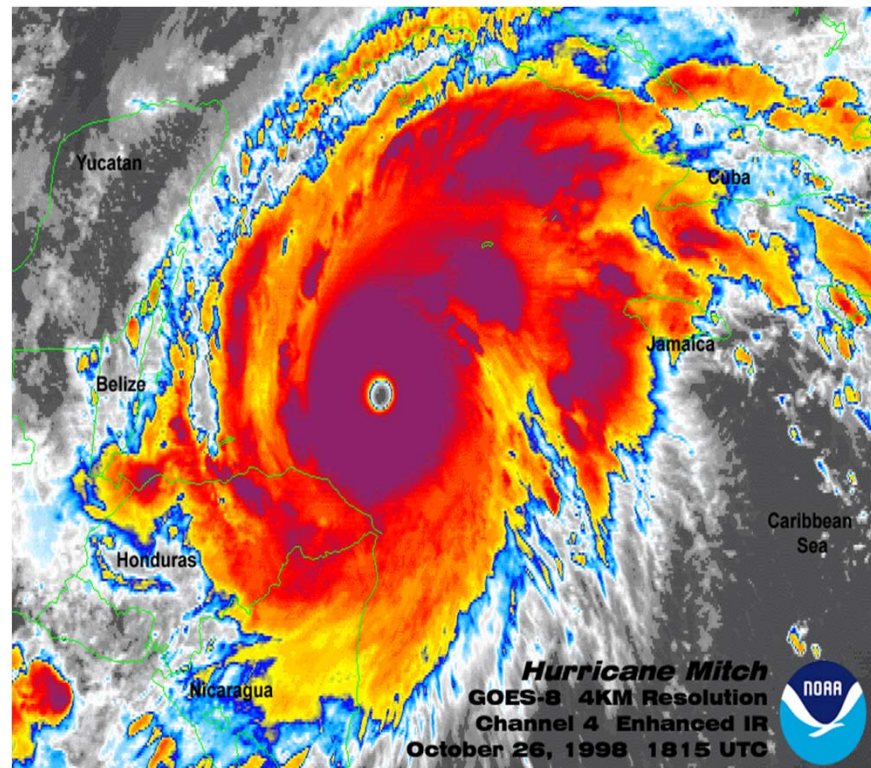




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Hurricane Mitch – October 1998

- 7th strongest storm
- 40+” of rain (unofficial)
- 19,325 dead or missing
- 2nd deadliest on record





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Honduras – 14,600 casualties





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Nicaragua – 3800 casualties





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Guatemala – 268 casualties (many indigenous deaths not reported)





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Mitch Video

- <http://www.youtube.com/watch?v=0A4ufJ66TUs>



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US Government response

- Immediate Response
 - Search and Rescue
 - Temporary Shelters
 - Field hospitals
- Mid-term recover
 - Infrastructure repair and rebuild
 - New housing
- Mitigation for future disasters



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Despite the strength of the storm, some areas suffered little damage. Why?

- Sierra de las Minas, Guatemala
- Rain Forest, Polochic Valley



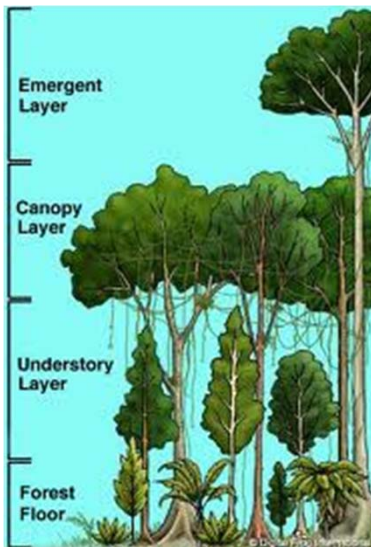


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Proper watershed management with forest cover

- Multi-layer forest disperses rainfall
- Heavy organic layer slows overland flow and increases absorption.



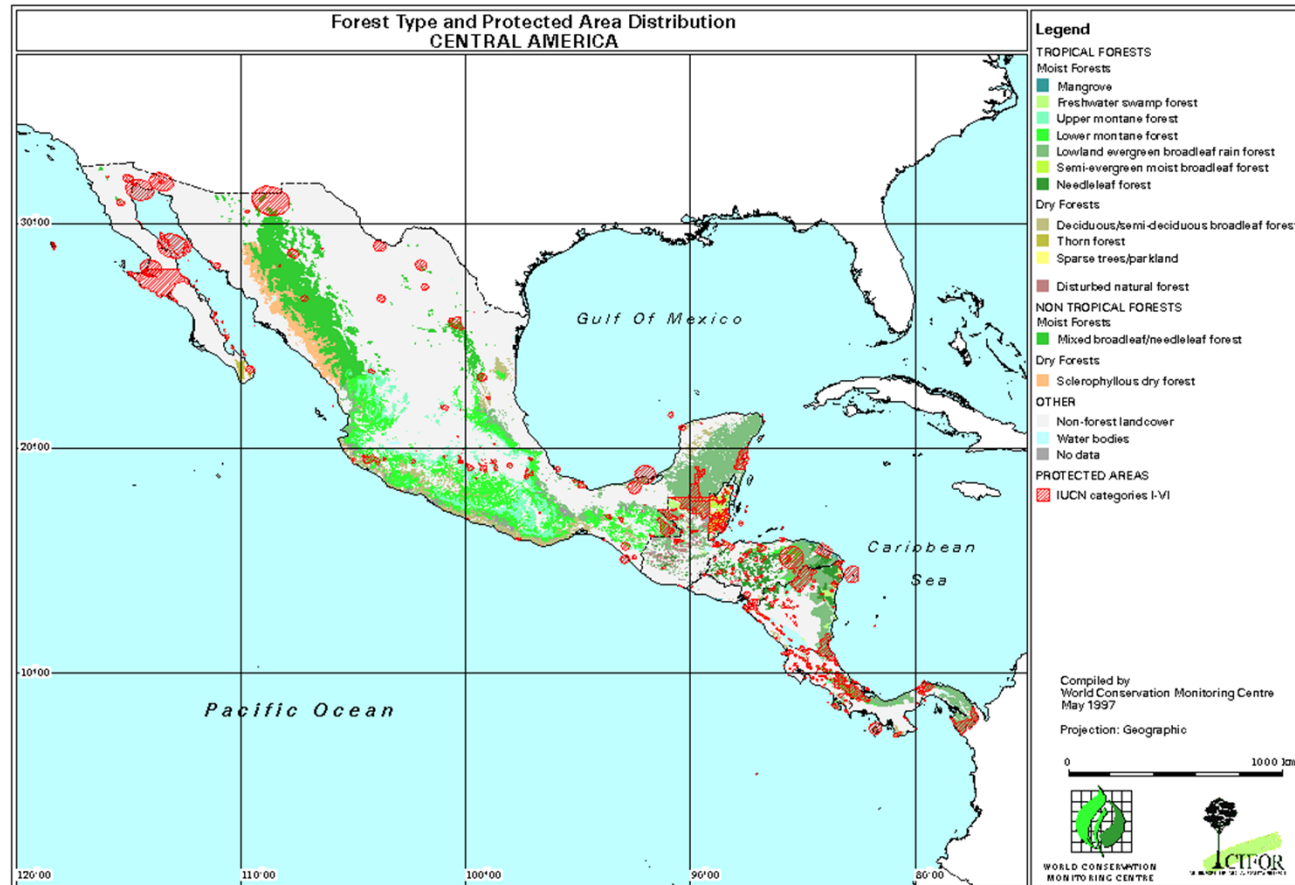


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What can be/is being done?

- Protected Area Management





What can be/is being done

- Best Agricultural Practices
 - Terraced farming
 - Agro-forestry
 - Intensive Grazing
 - Reforestation
 - Alternative livelihoods





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What can be/is being done

- Planned rural development





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USAID Investment in sustainable land management

- Honduras - \$78 million to implement agriculture BMP's, increase farm income, and restore watersheds through reforestation, improved protected area management and alternative livelihoods.





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**Guatemala - \$54 million
In similar activities**





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Ongoing programs - \$10 million/year





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Questions?



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