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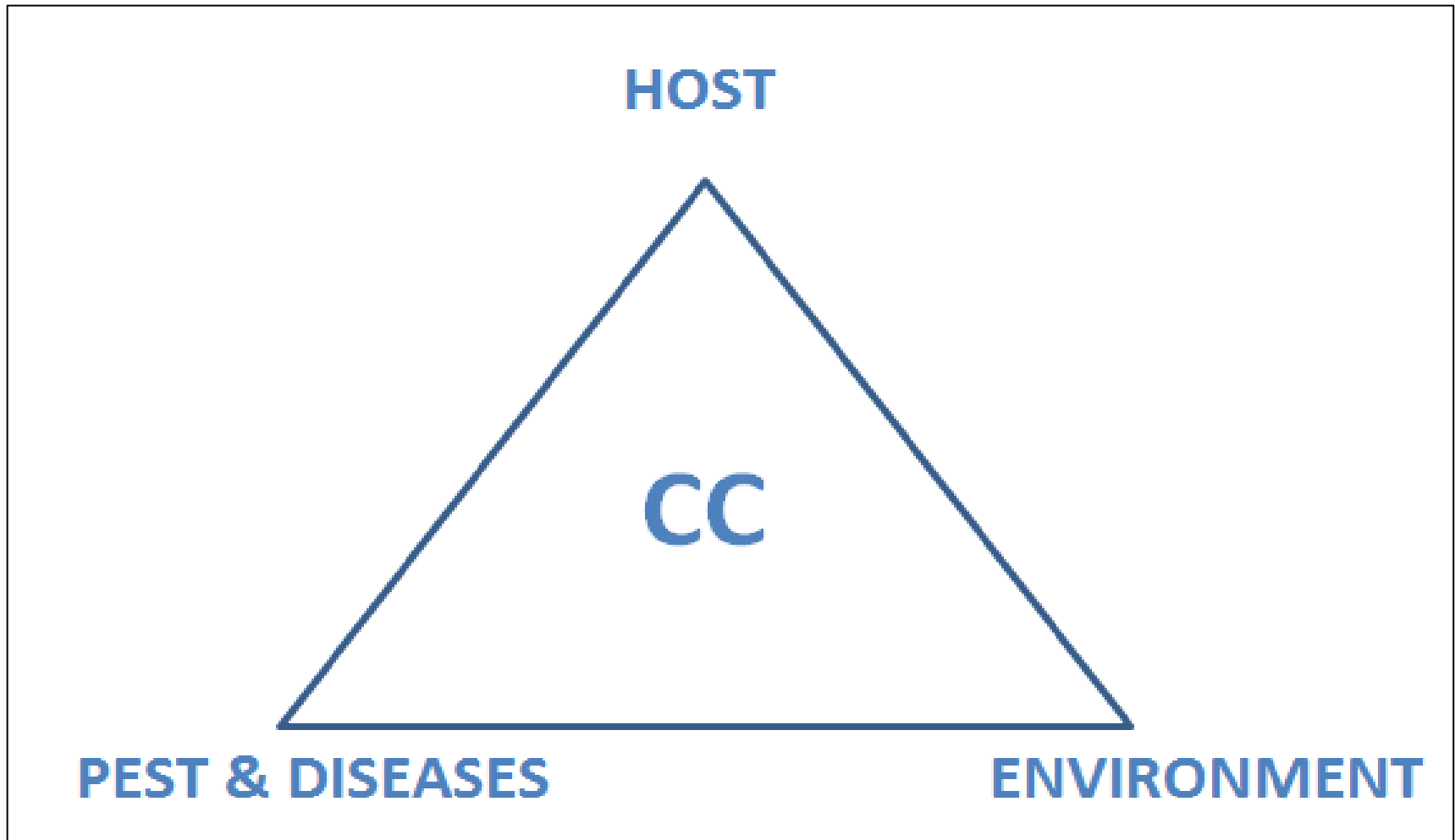
# Managing Animal & Plant Pests & Diseases

**CAPACITY BUILDING WORKSHOP:**  
**Building Climate Resilience Agriculture in Pacific SIDS**  
**11-13 August 2016, Nadi Fiji**

# Climate change (CC) influence on Pest & Diseases triangle



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# Change in insect pest adaptation



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- Farmers growing crops and vegetables on mountains on certain altitudes have been adversely affected by insect pests.
- The mountains have started to become much warmer thus these insect pests that never used to be seen at these altitudes have adapted themselves and causing havoc to farmers' fields and forest vegetation.
- Natural enemies like parasitoids and predators take time to move up and establish in these mountains thus damage can always be seen.
- Farmers purchase expensive pesticides to try and control these insect pests.
- In the event of spraying these pesticides to control the insect they also kill whatever predators and parasitoids that have also may have adapted to this high altitude temperatures.

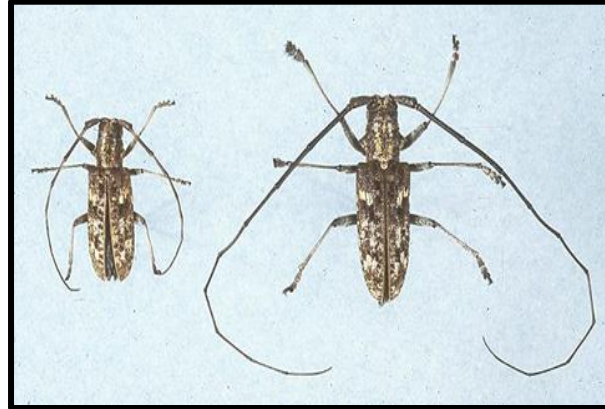
# Pine Wilt disease



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Pine wood nematode -  
*Bursaphelenchus xylophilus*.  
(Courtesy P. Donald, copyright-free)



*Monochamus* (pine sawyer) beetles,  
female (left) and male (right). (Courtesy  
M. Linit)



Blue stain fungus colonizing pine wood.  
(Courtesy P. Donald, copyright-free)



Dead pine tree with symptoms of pine  
wilt. (Courtesy P. Donald, copyright-free)



Movement of vector,  
nematode and disease  
pathogen up the  
mountain rangers



# CC impacts on Insect Pests



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Papaya mealybug  
(*Paracoccus marginatus*)



Cocoa pod borer moth  
[*Conopomorpha cramerella*]



Guam strain – G Strain



Samoa strain – S Strain



Very invasive – Guam, Hawaii, PNG  
Solomon Is & Palau – within 8  
years (2007 – 2015)



- Change in Weed adaptability patterns
- Change in Disease adaptability & pathogenicity

# Measures to counter CC changes



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- Introduce integrated approach;- Integrated Pest Management (IPM), Integrated Crop Management (ICM) and Integrated Vector Management (IVM).
- IPM – emphasis on use of biological control, enhance natural enemies, cultural practices and IPM compliant insecticides.
- ICM – planting of different crops in a given site (intercropping) increases both plants and insect biodiversity thus reduces dominance (avoid outbreaks) of a single population.
- IVM – understand the non-crop host plants for pest & diseases (reservoirs) and practice sanitation measures, manage vectors that transmit viruses to other plants.
- **Cropping Cycle to also reflect and include resilient crops.**

# Cont'd



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- Ongoing pest and disease surveillance on low and high altitude areas and comparison of related pests on weather patterns.
- Research on the Biological niche on the flora and fauna and diversity present out there in the various Pacific Island regions and identifying possible biological controls for various insect pests and diseases of concern.
- Update and Strengthen existing Biosecurity legislations to help individual Pacific Island regions identify and prevent the introduction of exotic pests and diseases.
- Also continue to strengthen the internal Biosecurity measures within the region to prevent the introduction of these pests and

预览已结束，完整报告链接和二维码如下：

[https://www.yunbaogao.cn/report/index/report?reportId=5\\_2585](https://www.yunbaogao.cn/report/index/report?reportId=5_2585)

