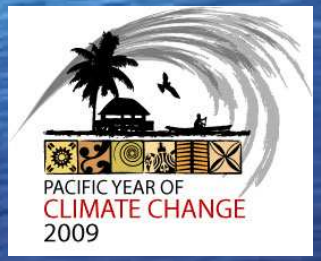
Climate change impacts in the Pacific

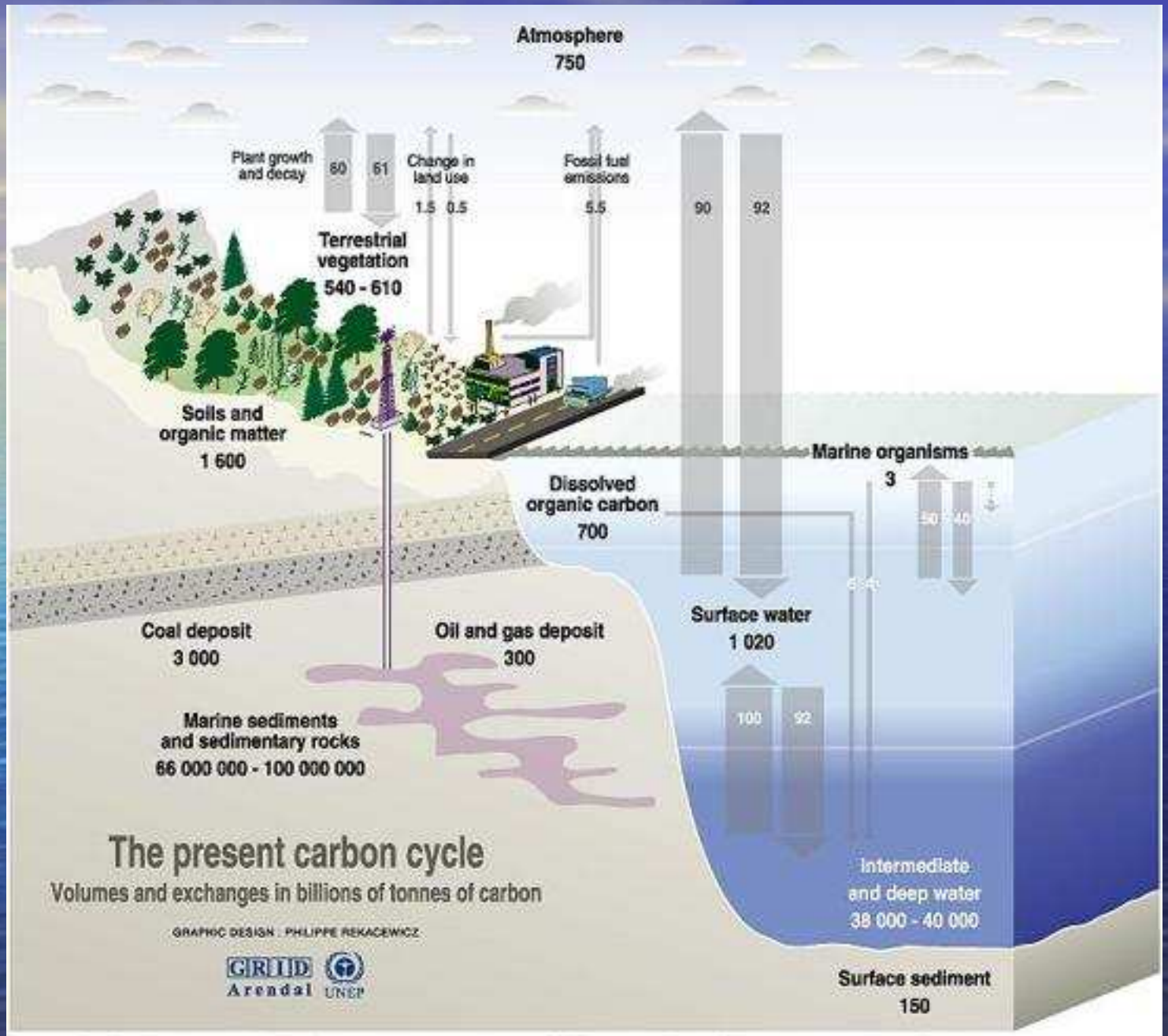
Espen Ronneberg
Climate Change Adviser
SPREP



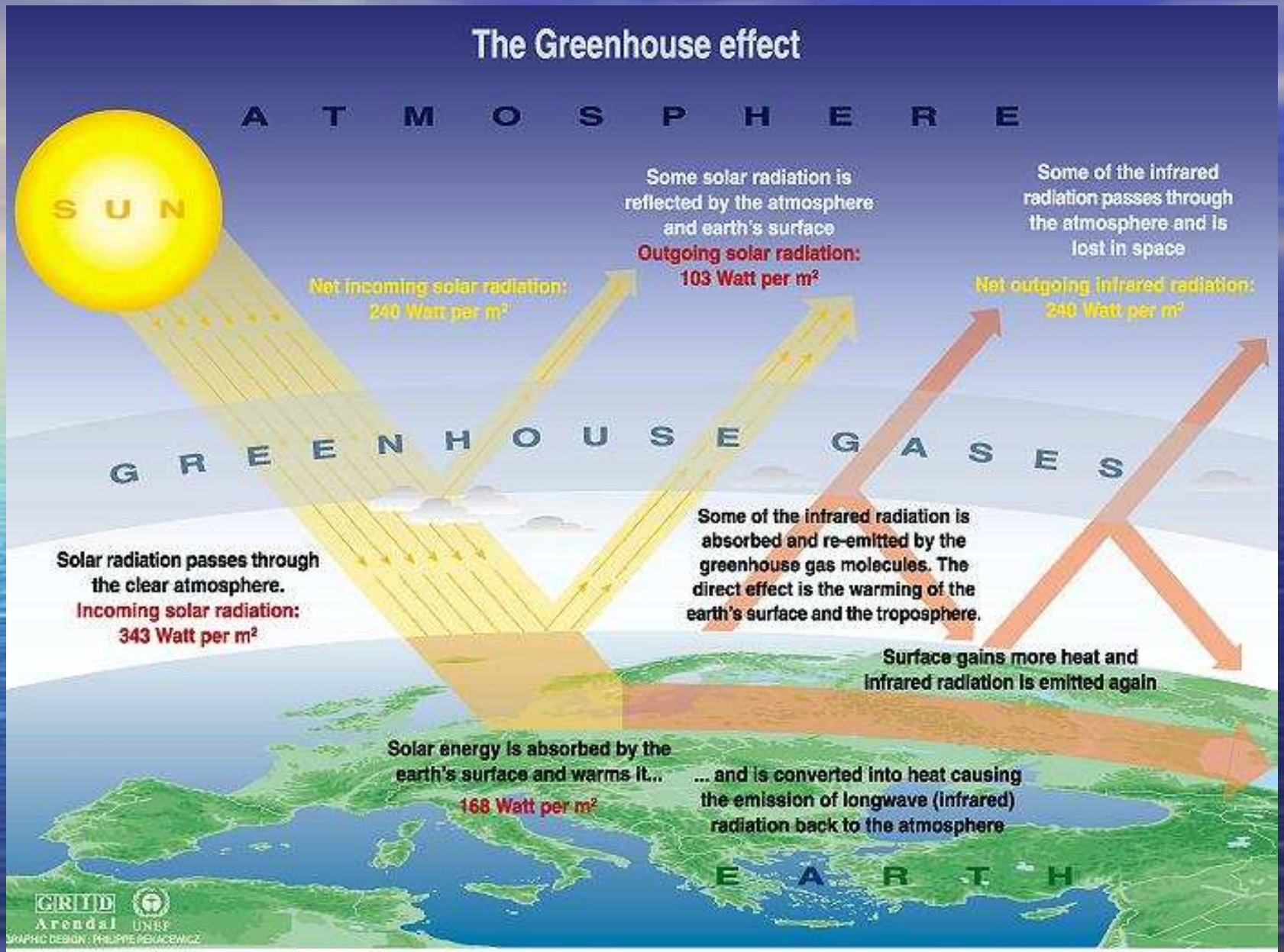
Secretariat of the Pacific Regional Environment Programme
PO Box 240. Apia, Samoa sprep@sprep.org

Overview

- Overview of climate change and the region
- The case for coordination and linkage
- Adaptation activities in the region
- Climate change governance
- Mitigation activities in the region
- Funding and the risks of climate change



Sources: Center for climatic research, Institute for environmental studies, university of Wisconsin at Madison; Okanagan university college in Canada, Department of geography; World Watch, November-December 1998; Climate change 1995, The science of climate change, contribution of working group 1 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO, Cambridge press university, 1996.



Sources: Okanagan university college in Canada, Department of geography, University of Oxford, school of geography; United States Environmental Protection Agency (EPA), Washington; Climate change 1995, The science of climate change, contribution of working group 1 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO, Cambridge university press, 1996.

Climate change and biodiversity are closely linked, merits cooperation

- Climate change will affect biodiversity directly, coastal erosion, temperaures, drought, floods, shifts in tuna stocks and migratory routes
- Climate change responses may affect biodiversity, single species reforestation (also use of invasive species), biofuels impact on food production and employment, adaptation (sea walls change coastal dynamics), relocation pressure on ecosystems

Impacts on biodiversity

- Increased sea temperatures if sustained cause coral bleaching and death
- Ocean acidification potential additional hazard
- This has impact on the nursery function of the reef
- Algal growth may increase, further exacerbating damage to ecosystem
- Broken reefs removes protection for coastal ecosystems, lessens touristic appeal

Coral Bleaching

before

after

during..

Other biodiversity impacts

- As shown during El Nino, significant shifts in tuna migrations are expected, as well as impacts on overall tuna stocks
- This will affect overall food security, human health, water resources, insurance and tourism, e.g intensity of tropical cyclones increases, gives rise to significant damage to food crops and infrastructure, and may allow inroads by invasive species
- current high health burdens worsened by climate sensitive diseases, eg. morbidity/mortality from extreme weather events, vector borne diseases, food and water borne diseases

Contribution of biodiversity to climate change responses

- Protecting exisiting forests stores carbon
- Planting new forests sequesters or removes carbon, restores degraded lands
- Healthy forest ecosystems assist in storing soil peat, flood control and watershed management, and is more resilient to climate change than monoculture
- Biofuels as a mitigation response

The themes for coordination

- Focus on ensuring continued close cooperation with FCCC and CCD
- Informed decision making on climate change mitigation responses not harming biodiversity, indigenous rights, etc
- Promote multiple benefits of certain adaptation options, avoid maladaptation
- Ecosystem valuation of multiple benefits

The cost of the impacts of extreme events on the region

- Cyclone Heta hit Niue in 2004
- 2 dead, 200 homeless, 20% of population
- NZ$50 million damage, $29,000 for every single Niuean, or 200 years of exports
- Only museum lost 90% of its collection
- All from a single extreme weather event

Regional action on adaptation

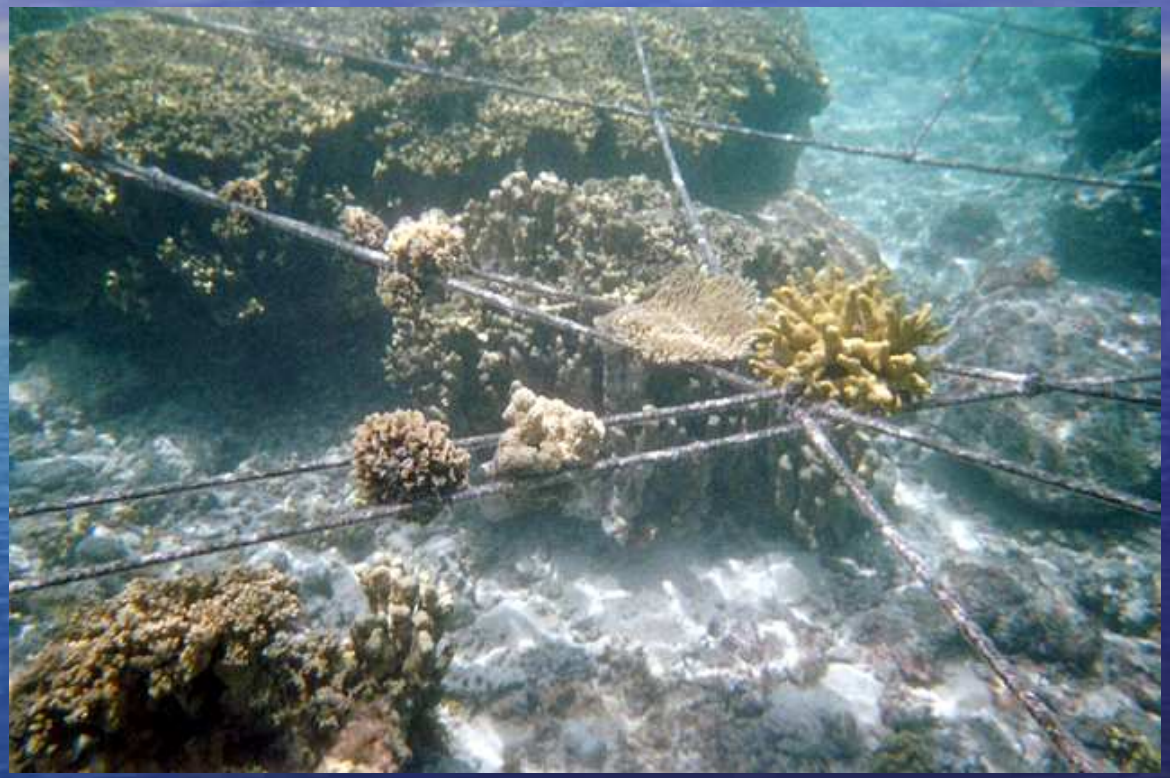
- Pacific Adaptation to Climate Change Project, 13 PICs, detailed work to address long-term adaptation, increase resilience of key development sectors to the impacts of climate change
- Long-term planned adaptation response strategies, policies and implementation, focus on coastal zone management and associated infrastructure (roads and airport), water resources, food production and food security.

Methodology used

- Adaptation interventions identified through numerous studies, assessments, meetings, workshops and seminars over the last decade.
- The key conclusions from the first vulnerability and adaptation assessments from national communications under the PICCAP project highlighted the vulnerabilities of coastal zones, water resources and agriculture, etc.
- These were also the focus of the CBDAMPIC project implemented in four of the PACC (Cook Islands, Fiji, Samoa and Vanuatu).

Examples from PACC

- Science based approaches, combined with local and anecdotal knowledge
- Kosrae road project – connecting circum-island road, climate proofing the road surfacing, strengthened drainage
- Avoids cutting into mangrove stand of biodiversity valuable to community



Pacific Islands Framework for Action on Climate Change

- Pacific Islands Framework for Action on Climate Change 2006-2015 endorsed by Leaders
- Establishes sets of priorities for action on climate change in the region – involves local, national, , regional and international levels
- Adaptation is a major focus: multi-stakeholder, risk management, no regrets, improving safe secure livelihoods, focus on most vulnerable areas and integrate in NSDS and other strategies

Establishment of Regional Roundtable on climate change

- To provide a major opportunity for the Governments and communities to build a consensus on what actions should be taken to alleviate climate change impacts
- practical work will be undertaken through regional and national policies as part of regional projects (PACC, PIGGAREP and PI-GCOS), and through NAPAs and SNCs.

Mitigation and biodiversity

- PIGGAREP project seeks to overcome barriers to renewable energy
- Aims for 33% reduction in fossil fuel use emissions by 2015
- Multiple methods – hydro, wind, solar, photo-voltaic, biomass, geothermal, ocean energy
- Surveys identified most suitable strategy for each of the PICs

UNDP proposed biofuels strategy for Fiji 2004-2005

- Using ethanol from sugarcane and the associated bagasse for electricity generation, coconut oil as a biodiesel and the co-gen using wood chips from timber operations, legitimate land clearing, and short rotation species such as luceana, acacia, eucalyptus, casuarina, and neem. (Note some are invasives!)
- Achieving high level of production of wood chips could displace the use of bagasse for co-generation, releasing bagasse for making ethanol and will significantly reduce GHG emissions estimated 910,000 tons of CO_2 equivalent per year – 90% reduction.

Other benefits

- Ethanol-petrol and ethanol-diesel mixes burn more cleanly
- Benefits to air quality – less black smoke
- Reduced demand on foreign exchange to be used for continued over-dependence on fossil fuels
- But – reduced Government revenue from import tariffs on fuel

Risks to biodiversity of the strategy

- Need to ensure that wood chips are from waste and not "poached" – certify the suppliers
- Need to ensure that food producing land is not converted – need policy and regulations
- If currently invasive species are harvested from marginal lands for co-gen, incentive to get rid of the species – avoid additional planting of invasives through certification
- Levels of employment – impact on food production

Funding opportunities

- GEF-PAS, nearly fully subscribed, but will likely continue as model for GEF – also small grants
- EDF-10 – significant funds but time-consuming application process
- Australia – 200 mill for mitigation (mainly forest related), 150 mill for adaptation
- Japan – Cool Earth initiative – US$10 bill

Risks and opportunities

- Stern Report states that early action can achieve good results at low costs (1% global GDP)
- But action needs to start soon, past emissions commit us to some change
- Need to begin peaking by 2020 to achieve lower increases in temperature

From SPREP statement to FEMM

"some PICs may become uninhabitable due to climate change, some have raised the issue of becoming environmental refugees. SPREP and the PICs work to formulate assessments and plans for adapting to climate change, so that near term impacts can be addressed, and longer-term impacts can be prepared for. Given the predictions it is clear that without strong measures to reduce GHG emissions, comprehensive adaptation in many PICs will be very difficult. Potential evacuation of islands raises grave concerns over sovereign rights as well as the unthinkable possibility of entire cultures being damaged or destroyed"

Thank you