



# Fakamaama Kupu ma e Hikihikaga he Matagi

Translation by Birtha Togahai  
Edited by Apenisa Tamani



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(The Pacific Climate Change Centre (PCCC) is the regional Centre of excellence for climate change information, capacity building, research, and innovation, hosted at the Secretariat of the Pacific Regional Programme (SPREP) in Apia, Samoa. It is mandated to provide practical information, support, and training to address the adaptation and mitigation priorities of Pacific Island communities)



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Our vision: A resilient Pacific environment sustaining our livelihoods and natural heritage in harmony with our cultures.

<b>Kupu</b>	<b>Fakamaamaaga</b>
<b>Fakakona Vivī he Moana</b>	Tokolalo lahi e pH he puke tahi ha kua lahi e kapone taiokosate moua mai he lahi e kiva he takatakaimotu.
<b>Hiki ke he mitaki</b>	Hikiaga fakatufugatia po ke tau momoui tagata ke paleko atu ke he tau lekua faka-kalaemete ke fakamatutū hifo po ke fakagahua e falu puhala mitaki.
<b>Fonua talumelie mo To akau</b>	Fonua toka pauaki nakai la to akau ke he 50 tau mo e fakaaoga mo to akau ke moua e tau tega po ke fakatalumelie mo moua tega.
<b>To fakalataha e tau akau ke he tau vahaloto he tau fonua to kai po ke tau kaina fao manu</b>	Ko e higoa katoa ke lata mo e fakaaoga he kelekele mo e to auloa e falu akau mo e tau lakau po ke tau fao manu he taha e maga kelekele. Ko e to fio nai ua e vahega; ko e to fakaatuatu po ke to magahala. Ha ha i ai e tau fevihuaki faka takatakaimotu mo e tau puhala uku monuina ka moua mai.
<b>Tumu</b>	Ko e koloa tufugatia ne maeke ke ha ha I ai e tau koloa fakamamiti po ke momono vai ke moua mai lahi e vai.
<b>Kapone</b>	Ko e mao moua mai he tau etome kapone, aua neke fehikitaki mo e kapone taiokesate
<b>Paleni Kapone/Kapone toemai</b>	Ko e katoatoa he tau mao kapone mo e mouaaga he tau kapone he taha e matakavi (fakaholoaga, veveheaga, motu, atu motu po ke lalolagi katoa)
<b>Fatifatiaga Kapone</b>	Ko e fakalautatai he tautuiaki he kapone mo e pota kapone po ke taha e potaaaga pauaki (tuga e etemosifia-paiosifia) he moui he kapone.

<b>Kupu</b>	<b>Fakamaamaaga</b>
<b>Kāpone Taeokesate</b>	Ko e vahega kese tufugatia moua mai ka tugi e tau vahega lolo pihia mo e hikiaga he fakaoaga he kelekele mo e tau fale gahua lalahi. Ko e matapatu kese fakamafana lalolagi ne lauia e fakalautatai he mao malolō mo e maama he laa he lalolagi
<b>Makete Kapone</b>	Ko e taha lakau ne fakaoga ke lata mo e fakafuaaga he tau ahua kapone
<b>Potaaga Kāpone</b>	Ko e tokaaga kapone maeke ke fakatoka e kapone tuga e kelekele, tau akau, moana mo e pulagi likoliko. Fakakakano e IPCC lima e potaaga kapone; tau koloa oti I luga he fuga kelekele, tau koloa oti I lalo fonua, tau patu akau popo, tau veve mo e tau kelekele kua fua mo e fakamau ke he tau hokotaki tohia he Kese Fakamafana lalolagi.
<b>Kapone Vevehekehe</b>	Utakehe e Kapone mai he pulagi likoliko mo e tuku ke he tula kapone.
<b>Sigi kapone</b>	Ko e ha gahua, feua po ke koloa ne utakehe e kapone taiokesate mai he pulagi likoliko.
<b>Mouamaiaga he Kapone</b>	Ha puhala po ke matagahua ne fakatoka e kapone taiokesate mai he pulagi likoliko.
<b>Tau Kapone</b>	Ko e katoatoa he kapone I loto he potaaga kapone ne maeke ke pota po ke fakatoka e kapone
<b>Puhala Fakameā</b>	Ne fakakite ke he Article 12 he Fakamooliaga Kyoto Protocol, ko e Puhala Fakamea nai (CDM) kua lata ke fakamakona ua e matagahua mahuiga; 1) ke lagomatai a lautolu nakai putoia he Annex 1 ke moua e atihakeaga fakatuleva mo e fakamakona e manako he Convention mo e 2) lagomatai atu ke he tau motu ne putoia he Annex 1 ke fakamooli e tau mumutu hifo he tau mao kapone mo e fakamooli e tau mumutu hifo kua fakamau.

<b>Kupu</b>	<b>Fakamaamaaga</b>
<b>Kalaemete</b>	Ko e onoonoaga loa ki anoiha he kalaemete he motu, mo e tau agiaga he matagi, tupu vehā mo e agi malolō he afā, matagi momoko mo e tau peau vela.
<b>Hikihikiaga he Matagi</b>	Hikihiki e matagi ha ko e tau gahua he tau tagata kua aofia e pulagi likoliko ke lalafi atu ke he hikiaga fakatufugatia mo e kua kikite ki ai ke he leva he tau magahala.
<b>Fakahagahagamitaki e tau Hikihikiaga he Matagi</b>	Ke he tuaga he hikihikiaga he matagi, ko e tau puhala ke tukutukuhifo e tau lekua po ke fakaunehake e tau koloa aoga he Kese Fakamafana Lalolagi (GHG). Ke tuga e fakaaoaga fakamitaki e tau makauho malolō hila po ke moua malolō hila mo e hiki ke fakaaoaga e tau malolō hila moua mai he laa (lapa sosa), fakamafana e tau fale, to fakaloga e tau akau mo e falu koloa lagomatai (sinks) ke utakehe e tau kese taiokesate mai he aolagi mamao.
<b>Tau tatalu moua mai he hikihikiaga he matagi</b>	Tau tatalu/gagao moua mai ha ko e hikihikiaga he matagi mo e kua mafiti ke tupu lahi tuga e tatalu he tau fanau ikiiki ko e matehoge, hihi, taefoti, lepetosipilosi, gagao he kai e tau ika kona mo e tau tatalu uta viko he tau namu tuga e fiva tigikī.
<b>Tau gagao moua mai he kalaemete</b>	Ko e tau gagao ne kua lagā mai ha ko e hikiaga he kalaemete mo e tau gagao pikitia vave tuga matehoge tau fanau ikiiki, hihi, taefoti, lepetosilosisi, kona ika mo e tau gagao uta viko he tau namu tuga e tigikī fiva.
<b>Hakehifo e Kalaemete</b>	Ko e hake mo e hifo he kalaemete mo e falu matanumela (tuga e sd, tupu fakafo mo e molea e keleā) he kalaemete ke he tau vahega fuafua fakaaoaga e tau fakatino po ke tupu fakahaga tuga e tau mafuike po ke falu lekua molea atu he tau matagi agi fa mahani. Ko e hake hifo nai he kalaemete lagakina ha ko e tau puhala fakatufugatia po ke lagā mai ha ko e tau lekua mai fafo.

<b>Kupu</b>	<b>Fakamaamaaga</b>
<b>Malona/Malolo e kaukau tahi</b>	Malona po ke malolo e kaukau tahi ha kua leva e moumou he tahi ke he loga e tau tau. Fakahigoa ko e Cutback ke fakakite kua lahi e mole he kelekele he magahala to afā ka e na liu ni liuaki mai po ke liuaki e kelekele/oneone nai ke he taha matakavi he tau magaaho i mua.
<b>Tau Feo Mamate</b>	Mamātea e lanu he tau feo ha kua mamate e tau moko fakatupu feo
<b>Fakataluēfonua</b>	Hiki e fakaaogaaga he kelekele ke he taha fakaaoga kehe po ke leva lahi e tu tokolalo he tau akau fakamalu ki lalo hifo he 10 pasene he maaga fonua ia.
<b>Tau Fakalagā</b>	Ko e tau fakalagā nai ko e tau puhala ke tupuaki taha mena. Ko e fakalagā he Fakataluēfonua ke liu fakaaoga mo to e tau fua he fonua, po ke manako akau kua maeke ke liu fakatalumelie mo to akau.
<b>Fakatoka e tau Mao Kese</b>	Kua fakatoka e tau mao (tuga e tau kese fakamafana lalolagi) ke he pulagi likoliko.
<b>Fakafua e tau Mao Kese</b>	Ko e taha puhala fakafua ke he makete ke moua e tau hagaoaga ke he takatakaimotu. Kua maeke foki e tau motu ne maeke ke tukutukuhifo e tau kese fakamafana lalolagi ki lalo hifo he gatamaiaga he tau mao kese nai ke fakaaoga po ke fakafua atu e tau mao kese ne toe ki loto he motu po ko fafo. Mailoga maeke e tau fakafua nai ke taute he taha kautaha kehe taha, motu poke lalolagi katoa.
<b>Mao Malolō Fakaaoga Mitaki</b>	Tukutukuhifo e mao malolō ne kua fakaaoga ke lata mo e taha gahua po ke papahi ia.

## Kupu

## Fakamaamaaga

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### **Fakamalolō e utakeheaga he tau sigi**

Ko e tau sigi kapone ne vevehe kehe e kapone taiokesate mai he pulagi likoliko. Loga lahi e tau sigi kapone fakatufugatia. Tau tupe fakaohooho ka moua mai he makete kapone po ke fakatupeaga kapone ke lata mo e utakeheaga he tau kapone taiokesate mai he pulagi likoliko. Kakano nakai fakaaoga e tau tupe fakaohooho kaeke ko e puhalā fakatufugatia a ia. Ko e tau puhalā taofi mo e leveki kua manako ke moua e tau tupe fakaohooho nai ke fakakite mua ko e matagahua nai kua maeke ke mafiti e vevehe kehe he kapone ka fakaaoga e tau sigi. Tuga e hiki e puhalā fakaaoga he kelekele po ke fai hikiaga e tau puhalā fakagahua.

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### **Ela Nino**

Ko e kupu El Nino ne fakaaoga fakamua ke fakamaama aki e tau peau mafana ne tafe atu he kaukau tahi Ekueta mo Peru, mo e lahi e tauhele e tau gahua futiika he motu ia. Ka e magaaho nai kua fakaaoga ke malutia oti e mafana he moana Pasifika he faahi uta he laini fakalava (dateline). Matutaki e mafana he moana nai ke he hake hifo he faahi mafana ne fakahigoa ko e Southern Oscillation. Ko e fakahoa he mena nai, pulagi likoliko mo e moana ke ua ke he fitu e tau kua pota fakalataha ti fakahigoa ko e ENSO (El Nino-Southern Oscillation. Fa mahani ke fuafua aki e malolō he fugavai kua kehemai ne kitia he vahaloto ha Darwin mo Tahiti mo e tau maomafana he moana ke he uho mo e faahi uta he Ekueta he Pasifika. Ko e magahala ENSO, lolelole e tau matamatagi (trade winds) ti to hifo mo e hiki e tau peau he moana mo e mafana e fugatahi mo e fakalolelole e tau matamatagi. Auhia e matagi, fugatahi mo e maovela pihia mo e fakafaliu vai he tau mena nai. Lauia katoa e Pasifika he tau lekua kalaemete nai mo e falu magamotu he lalolagi. Ko e vala momoko ha ENSO ko La Nina.

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### **Tau matagi tokaimaka**

Ko e tau matagi fa lavea ke kitia mo e tupu magahala he tau. Kehekehe e tau fakakakanoaga he kupu 'lavea' ka ko e matagi tokaimaka lavea foki ke tupu.

**Kupu****Fakamaamaaga****Vaouhi**

Ko e kelekele po ke fonua molea e 0.5 laulahi fakaheketea ne tutupu ai e tau akau molea e lima mita he tokoluga mo e fakamalu molea e 10 pasene po ke tau akau ne tata atu ke he tau fuafua nai. Nakai putoia e tau kelekele/fonua ne fakaaoga to tau fua he fonua po ke fakaaoga ma e tau gahua ke he lototaone. Mailoga ko e vaouhi ha kua tupu fetui e tau akau mo e nakai gahua ai ha tagata. Putoia ai foki e tau akau kua liu to mo e ha ne hoko atu e fakamalu ulu akau ia ke he 10 pasene mo e tau akau kua tokoluga ke he lima mita, mo e falu matakavi ne nakai fai mena ha ha i ai lagākina ha kua gahua ai e tau tagata po ke tau mena tutupu fakatufugatia mo e amanaki ke liu tuputupu. Putoia e tau matakavi kaina ne to ai e tau kaho mo e tau paama mo e hokotia ke malutia e tokoluga mo e fakamalu fafati; tau halavao, mo e falu talutalu malamalaega, tau akau i loto he tau paaka, tau matakavi puipui kua toka pauaki e tau akau ha ko e tau puhala fakasaenetisi, mahuiga mai tigahau, agamotu po ke fakaagaga, malu matagi, mo e tau atu akau molea e 0.5 heketea mo e molea e 20 mita he laulahi; mo e tau kelekele to akau po ke tau kelekele puipui.

**Vaouhi Moumou**

Tau hikiaga ke he vaouhi ati lauia e matagahua pauaki he matakavi ia kua to hifo e malolō ke moua loga e tau koloa mai I ai.

**Vai Magalo ke he uhotoka**

Ko e potaaga vai ne toka i lalo fonua he falu motu ikiiki ne ha ha i ai e vai magalo mo e tata lahi kehe tahi. Ke he vahaloto he vai magalo mo e tahi, haia e tokaaga magalo po ke kona matima he vai; malikiti e konatahi he vai magalo ka to hifo taha e puke he vai.

<b>Kupu</b>	<b>Fakamaamaaga</b>
<b>Vahega Kese Fakamafana Lalolagi</b>	<p>Ko e tau kese fakamafana lalolagi moua mai he tau vahega kese kehekehe ne toka ke he pulagi likoliko, ko e fakatufugatia mo e takiva he takatakaimotu ne momono po ke fakatoka e mao malolō ke he tau peau malolō kuafafati ki loto he fuafua infrared radiation ne fakatoka mai ke he fuga lalolagi, pulagi likoliko mo e tau aolū. Pihia e mouamaiaga he tau kese fakamafana lalolagi. Ko e vai, kapone taeokosate, naetolosene okosate, mifeni mo e kafu puipui po ke aolagi osone e tau kese fakamafana lalolagi. Ka e loga foki e tau kese talaga he tau tagata kua fita foki he ufa ki loto he aolagi osone tuga e tau kaponehalo, mo e chlorine mo e falu vai ne talaga aki e bromine ne putoia i lalo lifo he Maveheaga Fakamooli ko e Montreal Protocol. Ko e falu kese foki kua fakamau i lalo hifo he Maveheaga Kyoto Protocol tuga e sulphur hexafluoride, haitolo fuluolo kapone mo e pefuluolo kapone.</p>
<b>Onoonoaga Ua (hybrid)</b>	<p>Ko e onoonoaga ka gahua tokoua e motu mo e tau maaga motu po ke onoonoaga fakaholoaga. Kua maeke he tau motu ke kamata e tau fakaohohoaga REDD mo e tau la lā fekau kua lago ki ai mo e uneune fakatekiteki atu ke moua mo e fakaaoga he motu.</p>
<b>Malikiti hake e fakaholoaga leveki mo e fakaaoga e vaouhi</b>	<p>Ko e tau matagahua ke lata mo e fakahagahagamitaki he vaouhi ke lata mo e tau fonua kua to e tau akau lalahi ke fakaaoga mo akau ta fale, talaga laupepa pihia mo gaafi, malala, sipi po ke sotasi. Putoia ki loto he IPCC tau vahega vaouhi. Leveki mo e Fakaaoga e Vaouhi kua putoia foki e hikiaga mai he tau hele akau he vaha fakamua ke he tau hele akau fuafua ni he vahā nai (Leveki Fakatuleva e tau Akau) mo e hiki e tau fonua hele akau ke he tau fonua puipui.</p>
<b>Tau Fuafuaaga</b>	<p>Ko e totouaga he tau Kese Fakamafana lalolagi ke he motu poke tau fakaholoaga fakaatumotu</p>

<b>Kupu</b>	<b>Fakamaamaaga</b>
<b>Lekua Fakatufugatia</b>	Ko e tau lekua po ke tau fakatufugatia tokaimaka tuga e malona e tau mouga sinō, mafuike, fakapuke, vela tolofia e tau vaioihu, to afā, kape uhila, tiotio, peau afi/peau tolotua mo e mouga pā.
<b>Liu To e tau Akau ke he tau Fonua To Akau mo e fakamoui e tau vaouhi kua toka ke tupu mitaki mo e nakai liu hele anoihā.</b>	Tau ulu akau to foou kua to he tau fonua foou mo e leveki ke eke mo tau vaouhi tupu olaola e tau akau ma e anoihā. Ko e tau vaouhi to akau nai kua putoia ai foki e tau ulu akau kua liu to mole atu e hele mo e leveki fakatuleva ke he loga mo loga e tau tau. To hake hifo e moui he kapone mo e utahetua he moui hele/hio he tau akau.
<b>Falu Matakavi nakai vao uhi</b>	Ko e tau matakavi ne tu ki fafo he tau vaouhi ka e nakai putoia e tau vai namo mo e tau matakavi ne tupu ai e tau paama.
<b>Kese ne moumou fakatekiteki e Aolagi Osone</b>	Mafiti lahi e malona fakakemikolo he kili aolagi sitatosefia he aolagi ozone ha ko e tau kona mai he tau gahua fakahaoa he tau tagata.
<b>REDD-Plus</b>	Tukutukuhifo e tau Kona Ahua mai he tau fonua kua nakai fakaaoga mo to mo e hele akau phia mo e tau fonua akau kua molea e fakaaoga. Ko e REDD-plus ko e fakaholoaga fakamahao ni ke he tau fonua nai ka e putoia laulahi e leveki mo e puipui, leveki fakatuleva e tau vaouhi mo e fakamahomoatu e tau koloa kapone.
<b>Liu To Foou e tau akau</b>	Kua liu to fakafoou e tau akau mai he tau lakau po ke tau tega akau ke he tau fonua ne vaouhi mo e loga e tau akau fakamua ka kua hiki ke he magaaho nai.
<b>Malolō hila ne moua mai he tufugatia</b>	Moua mai he mao malolō mai he takatakaimotu tufugatia mo e putoia e tau tekenolo kapone tuga e tau lapasosa moua malolō mai he laa, malolō mai he vai, matagi, peau mo e vela mafana mai lalofonua ti pihia mo e tau tekenolo kapone noa ko e loloahua (biomass).

<b>Kupu</b>	<b>Fakamaamaaga</b>
<b>Tokaga/Mauokafua</b>	Ko e aga tokaga he potoaga tagata po ke tau mena momoui oti ke paleko ke he tau lekua fakatauhele ka e mauniva e tuaga mo e tau puhala fakagahua ke kaufakalataha mo e maeke ke moua e hiki ke he mitaki ke he tau paleko mo e tau hkihikiaga.
<b>Kona Matima Tahi</b>	Kua hiki e nofoaga he vai magalo i luga he fuga vai po ke vai magalo i lalo fonua ha kua hoko e tahi ki loto. Tupu e mena nai ke he faahi tahi mo e falu vai namo ne tafe ki tahi ha kua maha e vai ne tafe noa po ke mai he tau tula vai pihia mo e malikit fakahaga e puke tahi (sea level rise).
<b>Malikiti Fakahaga e Puke Tahi</b>	Hiki e puke he tahi, ke he lalolagi katoa pihia ke he tau motu ha ko e i) hikiaga he tau foliga he uhotoka moana, ii) hiki e puke katoa he tahi mo e iii) hiki e mamafa he vai. Ko e tau fakalagā ati malikit e puke tahi ha ko e vela mafana he lalolagi kua putoia e unehake he puke tahi katoa ha kua lahi e tataka he tau sinō mo e aisa, hiki e mamafa he tahi ha kua mafana lahi e puke he moana ti hiki foki e kona vivi he moana. Malikit fakahaga e puke tahi kaeke ke tokoluga hake e moana ke fakatatai atu ke he motu, ha kua tomo hifo fakahaga e motu ha ko e tau gahua fakatufugatia mo e tau gahua fakahanoa he tau tagata.
<b>Potaaga Kapone</b>	Ko e mouamaiaga kapone mai he tau akau po ke moana. Ko e potaaga nai kua putoia e utakeheaga he CO2 mai he pulagi likoliko ha kua hiki e fakaaogaaga he tau kelekele, to e tau akau he tau fonua nakai fai akau i ai, to e tau akau mai he tau tega, mo e pota kapone he tau luo tanu veve mo e falu matagahua ke fakatalumelie e kapone he kelekele ke he tau gahua to akau.
<b>Sigi</b>	Tau puhala, matagahua po ke feua ke utakehe e tau kese fakamafana lalolagi, ko e efu ahua po ke taha koloa moua mai ha ko e tau kese fakamafana lalolagi nai po ke efu ahua mai he pulagi likoliko.

<b>Kupu</b>	<b>Fakamaamaaga</b>
<b>Loka uta/uluulu</b>	Ko e malikit fakakū ke he taha matakavi he tukuna peau ha ko e tau putuputuaga matagi tokolalo po ke tau matagi agi malolō. Fakakakano e loka uta/uluulu ko e loka molea atu ke he vahegafafati mai he tau kehekeheaga peau ke he matakavi mo e magaaho tonu ia.
<b>Atihakeaga Fakatuleva</b>	Ko e atihakeaga kua fakafelauaki e tau manako ke he magahala nai ka e nakai fakaleua e tau manako he tau atuhau anoiaha.
<b>Leveki Fakatuleva e tau Vaouhi</b>	Ko e fakaholoaga foou mo e alaala ke fakatumau mo e fakamahomoatu e alito he moui ukumonuina, tau moumoui tagata mo e uho he takatakaimotu mo e tau akau kehekehe ma e monuina he tau atuhau anoiaha.
<b>Mafana ti mafao e puke tahi</b>	Felauaki mo e malikit he puke tahi ti fakakakano ko e maune hake e puke tahi (to hifo e matolu) lagākina ha kua mafana lahi e moana. Ha ko e unekimua e mafana he moana kua malikit hake foki e puke tahi mo e malikit fakahaga e puke tahi.
<b>Tau Gagao moua mai he tau moko uta fano, tuga e namu</b>	Tau gagao moua mai ha kua pikitia e tagata mo e tau manu mai he tau moko tuga e tau namu, tau tiki mo e tau fili. Falu he tau gagao nai ko e fiva tigikī, fufula e uho niu moua e mamahi ulu, uhu e kakia, po ke ai mitaki ke fano ke he mena maama, gagao Lyme (gagau he moko tiki kua fita he fai gagao) mo e malaria.
<b>Tu hagahaga kelea</b>	Tuaga hagahagakelea lahi ti nakai maeke ke paleko atu ke he tau lekua lagākina ha ko e hikihikiaga he matagi, hake hifo e kalaemete mo e kelea lahi mahaki. Ko e tuaga hagahagakelea nai ko e fakakiteaga he lahi mahaki e hikiaga he kalaemete ha kua felau ai, agaaga tetotonu mo e aga maeke ke hiki ke he mitaki.



