



Department of Science & Technology
Ministry of Science & Technology
Government of India

NMSHE
NATIONAL MISSION FOR
SUSTAINING THE HIMALAYAN
ECOSYSTEM



Climate Change Thlirzauna: Khawvel leh Mizoramah



STATE CLIMATE CHANGE CELL

Mizoram State Climate Change Cell (SCCC) hi National Mission for Sustaining the Himalayan Ecosystem (NMSHE) kalitangin Department of Science & Technology, Government of India, New Delhi tanpuinain kum 2014 khan Mizoram Science, Technology & Innovation Council (MISTIC), Directorate of Science & Technology, Government of Mizoram hnuatah din a ni a. NMSHE hi India Sawrkar laipuin sik leh sa inthlak danglam hmachhawn dan tur a ruahmanna National Action Plan on Climate Change (NAPCC) hnuata thil tum (mission) hlawm lian pariat zinga mi a ni a, Himalaya tlangram leh a bul thut, India ramin a huam chin states-a hmalakna tur a ni. Mizoram SCCC hi NMSHE hnuata project a nih angin mavhphurhna duan sa a neih zil zuim hma lakna kalpui thin a ni.

Mizoram Sawrkarin climate change laka hmalakna tura a duan State Action Plan on Climate Change (SAPCC) hnuata mission pakhat Strategic Knowledge Mission (SKM) chang turin Mizoram SCCC hi mavhphurhna pek a ni bawk a, NMSHE leh SKM hnuata hmalakna hrang hrang te chu hlawm thum in a hnuata mi ang hian a then theih a, chungte chu; Climate change scientific research mumal taka kalpui te; Sawrkar Department hrang hrang hnuata thawktu te, zirna in a mi te, NGO te leh mipui nawlpui te climate change laka hma la thei tura an theihna tilpun sak te; leh climate chungchang mitin te hnenah hmanraw chi hrang hrang hmanga hrilh hriat te a ni.

Mizoram State Climate Change Cell
Mizoram Science, Technology & Innovation Council (MISTIC)

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CONTENTS

	PAGE NO
Thuhma	i
Khawchin leh sik leh sa	1
Sik leh sa inthlak danglam - Climate Variability leh Climate Change	1-2
Green house effect	3-4
Khawvel lum zual zel - Global Warming	4-5
Climate Change - A chhan leh a thlen dan te	5-6
Climate change-in a nghawngte	6
Sik leh sa inthlakin Mizoram a nghawng dante	6-9
National Action Plan on Climate Change (NAPCC)	10-11
State Action Plan on Climate Change (SAPCC)	12-14
IPCC (Intergovernmental Panel on Climate Change) Assessment Report vawi 5-na (2014)	15-17
References	18-19


THUHMA

He lehkhabu hi Mizoram State Climate Change Cell-in khawvel leh Mizorama sik leh sa danglam dan tlangpui mipuite hnena hrilhhriatna atana a tihchhuah a ni a. Mipuiten sik leh sa lo danglam dân te, a nghawng te leh hma lakna hrang hrangte tarlan a ni.

Sik leh sa lo danglam zel hi kan nitin nun bâkah eizawwna thlenga min nghawng thei a nih avangin inzirtir tam a ÷ul hle a. Awlsam zawka mipuiten kan lo hriatfiah theih nana Mizo tawng ngeia ziaka a lo awm thei hi a lawmawm hle a ni.

Sik leh sa lo danglam dan chungchang hi thui tak ziah tur awm mah se, he lehkhabuah hi chuan a tlangpui, mipui nawlpui te hriat atana pawimawh zual te chauh tarlan a ni.

He lehkhabu buatsaihnaa hmalatu State Climate Change Cell-a thawktute chungah lawmthu ka sawi a. Mizorama kan thawhpui Department hrang hrangte leh India sawrkar laipuia Strategic Programmes Large Initiatives and Coordinated Action Enabler- (SPLICE) Division, Department of Science and Technology (DST) a kan hotute chungah pawh lawmthu ka sawi bawk a ni.



Date 20.1.2020

(Dr. RK LALLIANTHANGA)

Chief Scientific Officer & Member Secretary
Mizoram Science, Technology & Innovation Council

Khawchin leh Sik leh sâ

Kan chenna leilung khawi hmunah pawh ni sê, kan chheh vêl boruaka thil thleng thin, hêng khaw lum leh vawt te, ruahtui tla te, thli tleh te, ni sâ te, chhum zing te leh a dangte chungchâng kan sawi dawn chuan thil pahnih inkawp tlat, thil thuhmun thuak, an kawh tum hun chhông inang si lo an awm a. A hmasa zâwkah chuan, ni khat thil thua an danglam dân emaw, kâr khat chhông emaw, thla khat chhông emaw a an thlen dân hi **khawchin** (weather) ti a kan sawi thin hi a ni a. A pahnihnaah chuan chhông khawchin lo thleng thin te, hun rei zâwk, kum eng emaw zah chhônga an thlen dân tlângpui thlirna hi **sik leh sâ** (climate) tih a ni. Kum tina khawchin thlen dân hi chhiarkawp hmanga chawh rualin sik leh sâ sawifiah nân hman thin a ni a. Mithiam zâwkte chuan sik leh sâ hrihfiah turin a tlêm berah kum sawmthum chhông tal ni thei sê an ti a ni.

Sik leh sâ inthlâk danglam (Climate Variability leh Climate Change)

Khawvêl hmun hrang hrangah, a awmna hmun azirin sik leh sâ hi a inang lo thei hlê mai a. Khawvêl laiawl kiar lam hnaihte chu hmun lum tak tak, ruahtui tam tak tlâkna hmunte an ni tlângpui a, khawvêl chhim tâwp leh hmâr tâwp hnaih lamte chu hmun vawt tak tak, vûrin a khuh hmunte an ni thung. Hêng hmunahte hian kum tluanin khawchin a inthlâk danglam nasa em em hran lo.

Khawvêl hmun thenkhat erawh chu thlaler ram ro leh lum êm êm mai te, thlasik leh nipui inkâr te pawh danglam nasa êm êm mai thin an nih lâiin khawvêl hmun thenkhat erawh hmun nuam tak takte an ni thung. Ram thenkhat chuan ruahtui tlâk hun bîkte an nei lem lo a, thenkhatah erawh chuan khaw ro hun leh ruahtui tlâk hun

bîk chiang takin a awm a, ruahtui aia vûr a tlâk tam zâwkna te pawh hmun tam takah a awm bawk a ni.

Sik leh sâ hi kum eng emaw zah chhûnga khaw chin awm dân tângpui a nih thu kan sawi tawh a; amaherawhchu ngunthlûk taka a thlen dân kan thlir chuan kum tina a inthlâk kual vêl dân erawh a danglam thei òthin hlê a. Kumin tûn ang huna khaw awm dân leh kum hmasa lama tûn ang huna a thlen dân te a inang lo òthin hlê. Khaw lum zual kum leh khaw vawh zual kum te pawh a inkâr thlâk ve fo òthin a ni. Chutianga boruak dinhmun inthlâk danglam òthin chu *Climate Variability* ti a sawi a ni. Hei hi khuarêla thil thlen dân tângpui, kan leilung boruak leh tuiptui boruak danglam ve reng òthin te leh thil dang avang te niin mithiamte chuan an sawi a ni.

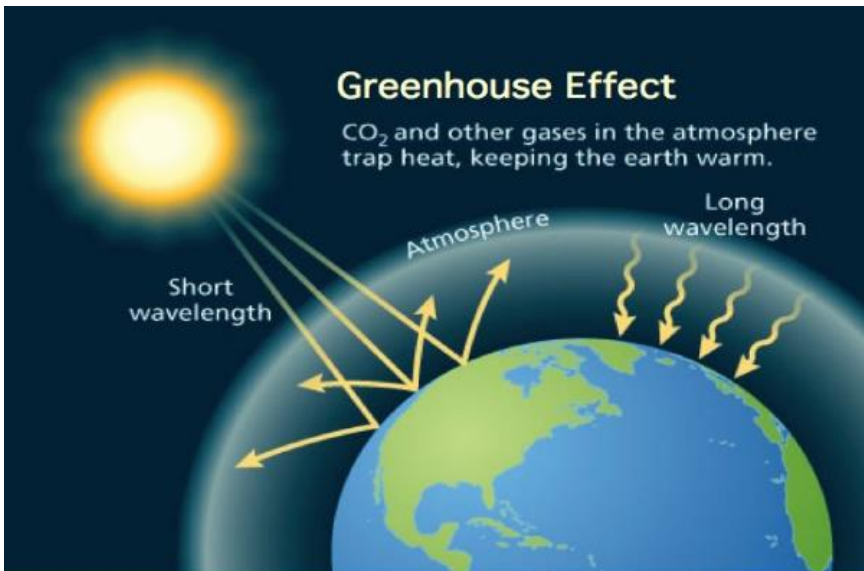
Kan khawvêl pumpui sik leh sâ pawh hian kum maktaduai tam tak kalta ata tawh khân khuarêla thil thleng hrang hrang avangin lum lam pan tial tial châng te, vawh lam pan tial tial châng te a nei ve reng òthin a, kan khawvêl sik leh sâ hi a inthlâk kual ve reng òthin a ni tiin mithiamte chuan an sawi òthin.

Amaherawhchu, tûn hnai kum zabi sawmhnihna tir lam aţang khân khawvêl sik leh sâ hi a thlen òthin dân pângngai aia nasa zâwk fê in a danglam mêk a ni tih mithiamte'n an hmuchhuak a. Hei hi rin thu mai a ni lo a. Heti lama thiamna nei ve lem lo te pawh hian kan chhevêl boruak inlumleh danglam chak dân hi kan hai awm lo ve. Khuarêla thleng pângngai Climate Variability kan sawi tâk piah lama eng emaw avanga boruak inlumlet chak lutuk leh sik leh sâ danglam nasa ta em em chu **Climate Change** ti a sawi a lo ni tâ a ni.

Greenhouse Effect

Climate change chungchâng kan luh chillh tak tak hmian kan dam khawchhuah theihna atâna kan khawvêl sik leh sâ, boruak lum leh vawh lam a nihna tur ang taka a awm theih chhan ber **Greenhouse effect** chungchâng hi kan sawi hmasa dâwn a ni.

Nizung chak tak mai hian kan khawvêl tuamtu boruak (atmosphere) hi rawn kal tlangin leilung a rawn chhun ðin a. Chu chuan kan khawvêl leilung tilumin, chu lumna chu boruakah a chhuak chho ve leh ðin a, he lumna khawvêl leilungin a pek chhuah hi ni zung anga chak a nih tawh loh avangin kan khawvêl tuamtu boruaka gas chi hrang hrang awmte chuan vân thengreng lama an chho tlang tur tam tak an lo dang khâwm ðin a. Chuvang chuan kan khawvêl leilung leh boruakah hian lumna a lo châm bâng ta ðin a ni. Chu thil thlen dân chu **Greenhouse effect** tih a ni a. Boruaka gas chi hrang hrang lumna lo dang theitu gas te chu **Greenhouse gas** tih an ni a, chung zînga langsâr zualte chu tuihû te, methane te, nitrous oxide te, carbon dioxide leh a dangte an ni.



Greenhouse effect avang hian kan khawvêl boruak lum leh vawh lam hi nunna nei te tâna dam khawchhuah theihna tur tâwk chiahin a lo awm thei a. Khuarêl kalphung pângngaiyah chuan a tâwk chauha boruak vawng turin greenhouse gas pe chhuaktu leh hîp raltute hi inchawih tâwk takin an awm ðhin a ni. Kan khawvêl boruak lumna hi chawhrualin Celsius degree 15 vêl nia chhût a ni a, green house effect hi awm lo ta sê, khawvêl boruak hi chawhrualin Celsius degree minus 25 vêl ni tura ngaih a ni a, mihringte tân phei chuan dam khawchhuah theih a ni lo vang.

Khawvêl lum zual zel - Global Warming

Kum zabi 19-na tâwp lam aţang khân khawvêl boruak hi a lum chho chak hlê a. Khuarêl thil thlen dân pângngai aia nasa zâwkin a lum chho mêk zel tih hmuhchhuah a ni bawk. Hetia a dân pângngai aia nasâ a khawvêl boruak lo lum zual zel hi Global warming kan tih chu a ni. A chhan bulpui ber chu boruaka greenhouse gas te, a bîk takin carbon dioxide lo pun nasat tâk avang niin zirtu tam ber te chuan an sawi a ni. Kan khawvêl tuamtu boruak a greenhouse gas lo punna chhan ber chu mihringte kan ni tih hi khawvêl scientist zawng zawng deuh thawin an pawm a, a bulpui ber chu fossil fuel (tui/lung/boruak-alhthei) kan hman nasat avang a ni an ti bawk.

Fossil fuel kan tih te hi thil nung thi tawh taksa ðawih bang lei chhûngrila kum maktaduai tam tak chhûnga lo inup tawh, lungalhthei te, tuialhthei te leh boruakalhtheia lo changta te hi an ni a. An dam lâiin an taksâah carbon tam tak an lo khâwl tawh avangin hêng tuialhtheiah te hian carbon a tam êm êm a ni. Kum 200 vêl kaltâ aţang khân fossil fuel tha chakna mihringte'n kan hmang nasa ðan a, chumi avang chuan kum tin boruakah ton tluklehdingawn zeta tam carbon kan pe chhuak ziah ðhin a ni.

A hma lama Greenhouse gas kan sawi tâk te kha khuarêlin a duan anga awm tur ang zat hi kan khawvêl boruakah hian an awm ve reng a. Global warming kan sawi tâk erawh hi chu mihringte thil tih avanga boruaka greenhouse gas pung nasa ta lutuk leh chumiin namên lo va khawvêl lumna a tih sân hi a ni a. Khawvêl boruak lum lam hi kum zabi 21-na tâwp lamah chuan tân aiin Celsius degree 2 atanga 4 chuangin a lum tawh dâwn niin Intergovernmental Panel on Climate Change (IPCC) hnuaiia scientist rualte chuan an chhût a ni.

Climate Change - A chhan leh a thlen dân te

Khuarêl avangin khawvêl sik leh sâ hi danglam ve reng thîn a ni tih kan sawi tawh a. Ni a hêl kualna kawngah khawvêl hi degree 23½ vêlin a inchhawng hê deuh hlek a, chu chu eng emaw chângin a danglam ve hret hret thîn. Chumi avang chuan leilunga nizung rawn luh dân a danglam ve thei thîn a, sik leh sâah nghawng a nei thîn bawk a ni. Tin, tlângkâng a tam tum te chuan boruakah greenhouse gas a pun phah thîn bawk. Chumi piah lamah chuan kan leilung che reng leh khawvêl chhimchhak lam tuifinriat chung a boruak lum leh vawt kal vêl dân inthlâk (el-nino) avang te leh khuarêl chhan dang dang avang tein sik leh sâ hi a danglam ve reng thîn a ni.

A hma lama sawi tawh angin mihringte hian khuarêla thil thleng pângngai hi kan tibuai nasa êm êm a. Kum 100 liam tâ vêl aţang pheih kha chuan fossil fuel kan hman tam avang te, ramngâw tha kan tih chereu avang te, industry a pun nasat avang te leh kan khawsak phung thenkhat avang tein greenhouse gas; a bîk takin Carbon dioxide chu boruakah kan tipung nasa êm êm a. Chuvang chuan chawhrualin tuna kan khawvêl lum lam hi Celsius degree khat (1) vêlin tân hma kum 100 vêl liam tâ ai khân a lum tawh a, hei hi khuarêl kalphung aia lêt tam takin a nasâ a ni. Chu chu global

warming kan sawi tâk kha a ni a. Global warming hi sik leh sâ inthlâk danglam (climate change) a nih nghal rualin khawvêl sik leh sâ her danglamtu ber a ni bawk.

Climate change-in a nghawngte

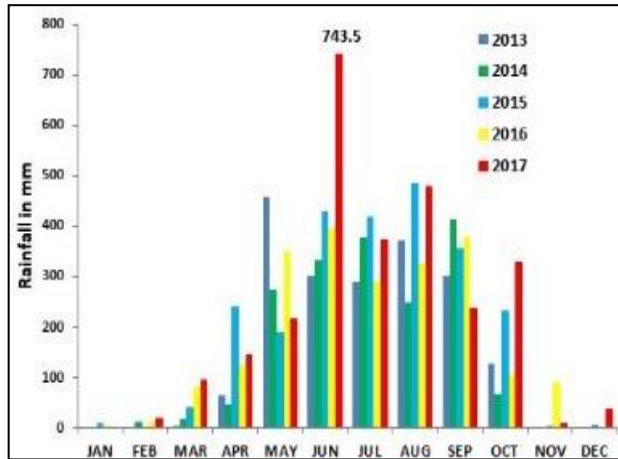
Climate change hian kan chhehvêlah nghawng hrang hrang a nei nasa hlê a, khawtlâng nunphung leh khawsak dânah te, kan nîtin mamawh tui hman tur te, thlâi chîn dânah te, mihring hrisêlnaah te pawh nghawng a nei vek a ni. Ruahsûr dân inthlâk danglam avangin hmun thenkhatah tui a vâh theih viau lâiin hmun thenkhatah chuan tuilian an tuar ve thung a. Khawlum zel avanga vûr tlang tuiralte chuan tuiliente a thlen theih mai bakah lei chunglâng thate a kalral nasa hlê thei bawk a ni. Tin, vûr tlang tuiral avangin tuifinriat chîm chin pawh a sâng telh telh zel a ni. Khawvêl lum zel hian thlâi chîn dân hun bîte hi a her danglam hret hret a, hemi avang hian ei leh bar intodelhna lamah nghawng nasa tak a nei a. Tin, rannungin an putdarh theih natna chi hrang hrangte an darh chak êm êm bawk a ni. Ramsa chi hrang hrang leh an chênate hi khawvêl a lo lum chhoh telh telh avang hian mang thei mai dinhmunah an ding bawk a ni. Khawvêl ecological balance atâna hmun pawimawh em em mai te, entirân Coral reefs te, boreal forest te leh Mediterranean leh tlâng hmun te hi climate change-in a nghawng nasat tur te an ni tih mithiamte chuan an sawi a ni.

Sik leh sâ inthlâkin Mizoram a nghawng dânte

Mizoramah hian chhinchhiah dânin kum 1986 atanga kum 2017 inkârin kumtin ruah sûr hi 5.22 mm in a tlêm zela. He kum 32 chhûng hian kum 2007 kha ruah tui tam ber kum a ni a, 3121.86 mm a tla a, kum 2014 kha ruah tui tlêm ber kum niin 1936.83 mm a tla a ni. Mizoram hian chawhrualin kumtin ruah tui 2551.88 dawng

ang kan ni. Mizorama district hrang hrang khaikhinin kum 1986 aṅanga 2017 chhûng khân Lunglei district-ah ruahui a tam ber a (3204.73 mm), Champhai district-ah a tîem ber thung a ni (1534.6 mm).

Mizoram sik leh sâ awm dân tîangpui thlirin kum 32 chhûng khân January thla hi kumkhata a vawh



ber thla a ni a, April thla hi a lum ber thlaa chhinchhiah a ni bawh. Aizawl bîkah chuan ni 13.1.2017 kha kum 32 chhûnga khawvawh ber nî niin, a vawh lâi ber khân 2.7°C ah a tla thla a, ni 26.4.2019 kha kum 32 chhûnga khawlum ber nî niin, a lum lâi ber khân 38.4°C a kai cho bawh. Tin, khaw lum lam hi chawhrualin kumtin Celsius degree 0.04 in a sâng telh telh a ni.

Sik leh sâ inthlâk danglam avang hian khuarêl chhياتna chi hrang hrang kan tâwk ngun ta hlê mai a. Ruahui tîak dânte pawh hian hun bi mumal an nei thei tawh lo va. Mizo tena ruah leh thli hming hrang hrang leh an thlen hun mumal tak kan neih ṭhin te kha thliar hran hleih theih an ni ta lo a ni.



Kum 2017 phei kha chuan February thla aṅangin ruahui a tla ṭan a,

chawlh tak tak nei miah lovin kumtluanin a sùr tih theih a ni a, tlâng ram loneitute an buai phah hlê a, lo vah hun, lo hal hun, thlâi chîn leh buh tuh hun mai bakah thar chhuah lam thlengin a buai hlê bawk a ni. Tin, 2017 vek June thla khân kum dang zawng zawng aia lêta tam ruahtui kan dawng a, Mizoram hmun hrang hrangah leimin te, in chimte leh Tlawng lui lianin khaw thenkhat a chîm avanga chhiatna leh châna tam tak kan tuar a, inkalpawhna kawng pawh hmun tam takah a chhiat avangin sawrkâr leh ram pum a buai phah hlê bawk a ni.



Khaw lum zel avangin rannungin an thehdarh theih natna chi hrang hrang a hluar chho hlê a. Health Department lam thawktute sawi dânin tûn hma chuan khawchhak lam Champhai leh a chheh vêlah te khian malaria natna kai hriat tur an awm ngai lo va, tûnah erawh chuan khua lo lum zel avangin hêng natna thlen thei thosi an lo awm theih tâkah chuan malaria (Sikserh) natna kai hriat tur an lo awm ve ta fo mai a. Tin, natna dang saphihrik aţanga kai theih rannung seh natna (scrub typhus) pawh hi kum 2007 vêl aţang khân a hluar chho hlê a, tûn hnai kum li kum nga kalta aţang khân thosi tial chikhat (Aedes) pawh kan chhevêlah hmuh tur an lo awm ta fo mai a, he thosi aţanga kai theih natna hlauhawm tak Dengue pawh hi kan hre chho ţan bawk a ni.

Khawthlang tlâng dung lama sêrthlum tha em em ţhinte pawh a lo tâm vek tawh a, tûn hmaa sêrthlum ţhat duhna hmun ni a

kan hriat ngai loh khawchhak lam North Vanlaiphai leh Biateah te chuan sêrthlum a rawn ṭha chho em em thung a ni. Tin, Mizoram khawchhak lam hmun zo deuhah chuan hêng thei thenkhat; lamkhuang te, kâwlthei te, theihâi te leh balhlâ te hi rah ve mah sê an hmin ṭha thei ngai lo ṭhin nia hriat a ni a. Tûnah erawh chuan khaw lum zel avangin an hmin thei tawh a ni. Tin, Mizorama phâi leh hmun hniam lampang bîk chauha ṭha duh êm êm ṭhin kuhva pawh hmun sâng lamah an lo ṭha duh leh ta zel a. Mizorama kan thei chîn ṭhin hrang hrangte an ṭhat duhna hmun ṭhina chîn theih loh a awm ta fo mai a. Sorkâr hmalâknain hmun tam takah chuan khawlum tuar thei zâwk thei dang (Entirân;- dragon fruit)-a thlâk an ni ta fo a ni.



Kum 10 hma lampang kha chuan silk pangang khawite pawh tûn ang hian a hlawhtling lem lo va. Tûn hmaa Assam larna ṭhin Muga silkworm te chu Mizoramah an ṭha duh ta hlê zâwk a ni.

Hêng a chungah kan târlan tâk te hi kan hriat theih chin tlângpui a ni a, kan sawi loh leh kan hriat loh thil dang tam tak pawh a thlen a rinawm. Tûn ang zela kan sik leh sâ hi a kal chho a nih chuan kan hma lamah hian tûn aia nasa zâwka harsatna hmachhawn tura kan inbuatsaih a pawimawh em em a ni.

National Action Plan on Climate Change (NAPCC): *Sik leh sâ inthlâk danglam zel laka India sawrkâr laipuiin hmalâk dân tur a ruahmanna.*

Intergovernmental Panel on Climate Change (IPCC) in kum 2007 a khawel pum huap Climate Change report AR4 a tih chhuah kha khatih hunlâia India Prime Minister Man Mohan Singh-a chuan a ngâi pawimawh hlê a. India ram hi sik leh sâ inthlâk danglam lakah kan him lo hlê a ni tih hriain ram pum anga hmalâkna tur duan chhuah tha a ti a. Sawrkâr laipui hnuaiia ministry hrang hrang ten sik leh sâ inthlâk danglam laka an hmalâk dân tur kimchang tak duanga theh lût tura tih an ni a. Chu an document theh luh chu Prime Minister's Council on Climate change kaihhruaina hnuaiiah mithiamten khâikhâwmin June 30, 2008 khân National Action Plan on Climate Change (NAPCC) chu tih chhuah a lo ni tâ a ni. NAPCC hnuaiiah hian thil tum lian deuh deuh (mission) pariat a awm a, chûngte chu:

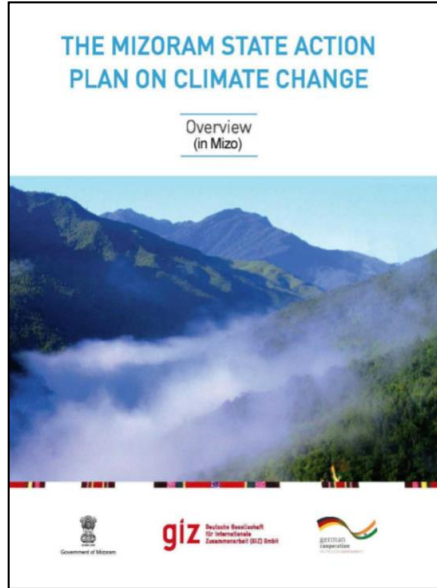
1. *National Solar Mission:* Solar energy tih changtlun leh hman tam hi he mission tum pakhat chu a ni a. Solar research center din te, solar technology tih changtlun nâna ram pâwn lam nêna thawh ho, government lam atanga funding leh ram pâwn lam atanga tanpuina tih tam te hi a tum thenkhat te an ni.
2. *National Mission for Enhanced Energy Efficiency:* He mission tum ber chu kâwlphepha renchem tak leh awmze nei taka hman a nih theih nâna ruahmanna fel tak neih leh man man taka lei leh hralh kalpui a ni.
3. *National Mission on Sustainable Habitat:* He mission-in a tum chu inchnhng vêla kâwlphepha renchem tak leh awmze nei taka hman te, bawlhhlawh sâwngbâwl dân tha zâwk

duan chhuah te leh vei vahna atân vântlâng tâna lirthei service-te hmang tam tura inzirtir te a ni.

4. *National Water Mission*: He mission hian 20% vêla a hma aia ðha a tui renchem leh awmze nei taka tui hman hi a tum chu a ni.
5. *National Mission for Sustaining the Himalayan Ecosystem*: He mission hian Himalaya tlânga vûr tlang lo tuiral zel tur ven leh a chhehvêla thlâi leh ramsa (biodiversity) humhalh te hi a tum a ni.
6. *Green India Mission*: He mission hian 6 million hectare rambua-a thing phun te leh India rama ramngâw ðha 23% aţanga 33% vêla tih zauh a tum a ni.
7. *National Mission for Sustainable Agriculture*: He mission hian climate change lo thleng mila inher danglam zel nân sik leh sâ inthlâk tuar chak zâwk thlâi chîn te, lo neih dân tih changtlun te hi a tum a ni.
8. *National Mission on Strategic Knowledge for Climate Change*: Climate science chungchâng, a nghawng leh harsatna hrang hrangte hriat zau lehzual nân te, Climate Science Research Fund thar siam te, climate modeling changtlung zâwk siam te leh ram leh ram inrina pêla awm te nen thawhhohna ðha lehzual neih te hi he mission hian a tum a ni.

State Action Plan on Climate Change (SAPCC): NAPCC zul zuia sik leh sâ inthlâk danglam zel laka Mizoram sawrkâr hmalâk dân tur ruahmanna.

Mizoram Sawrkâr hian Climate Change chungchâng hi a ngâi pawimawh hlê a. Sawrkâr department hrang hrang te, mithiam te, zirna in sâng te, pawl te leh NGO te uluk taka inrawnkhâwmin hmalâk dân tur ruahmanna Mizoram State Action Plan on Climate Change pawh tum hnih lâi (2012-2017 leh 2018-2030) siam a lo ni tâ a. Ruahmanna hrang hrang - zirbingna, ruahmanna tha duan chhuah, ram leilung hausakna hmanzai kawnga ruahmanna tih puitlin, mimal hriatna/theihna tih puitlin leh pawl/zirna inte tih chak/thuam ãhat te hi a siam a ni. SAPCC hnuaiha hian NAPCC ang thovin mission hrang hrang a awm a, chûngte chu:



1. *Sustainable Agriculture Mission*: He mission hnuaiha ruahmanna ãhenkhatte chu sik leh sâ inthlâkdanglamin thlâi, ranvulh, sangha khawi a nghawng dân te, natna an tawh dân leh hri lêng uluk taka chhinchhiah te leh inven dân ruahman te, thlâi ãhenkhat sik leh sâ inthlâk danglamin a nghawng ve loh te chhinchhiah leh zawnehhuah te, Climate Smart Agriculture hmanga thlâi/buh chîнна hmun te siam ãhat a, System of Rice Intensification (SRI) hman te hi he mission hnuaiha ruahmanna ãhenkhat te an ni.

2. *Mizoram Green Mission:* He mission hnuai ruahmanna thenkhatte chu; ramngâw humhalh kawnga tha taka hma lak a nih theih nâna GIS (Geographic Information System) base monitoring system leh a tekhawng siam te, rambua-a thing phun te leh mau, nauban, ramhmul damdawi leh ramngâw atanga hnephnawl (NTFP- Non-Timber Forest Product) te ramngâw tichhe lova thar chhuah dân ruahman te hi a ni.
3. *Mission on Sustaining Himalayan Ecosystem:* Sik leh sâ inthlâkdanglamin nungcha tinreng leh ramngâw hausakna leh mau leh NTFP a nghawng dân zirchian te, Mizorama wetland te leh ramhmul damdawi humhalh te hi he mission hnuai ruahmanna thenkhatte chu an ni.
4. *Sustainable Habitat Mission:* Khawpui bawlhhlawh paih dân tha zâwk ruahman, khawpui leh a chhehvêla tui hnate renchem tak leh awmze nei taka hman te, kan hmanraw neih te renchem taka hman dân inzirtir te leh renewable energy hmang tângkai tura inzirtir te hi he mission hnuai ruahmanna thenkhatte an ni.
5. *Climate Resilient Health Mission:* He mission hnuai ruahmanna thenkhat awm te chu; sik leh sâ inthlâk avanga malaria natna lo darh dân zirchian te leh sik leh sâ inthlâk avanga natna puang thut thei rang taka hriat lawk a nih theih nâna zirna buatsaih te hi a ni.
6. *State Solar Mission:* Ni zung chakna thahrui hmanga thingtlâng khaw 10 a kâwlpheha pek leh Lengpuia ni zung thahrui chakna hmanga kâwlpheha siam chhuahna 1 MW din te leh tuilumna 100 LPD leh 200 LPD hmun 100-a din te hi a tum te zînga mi an ni.

7. *Enhanced Energy Efficiency Mission*: Kâwlphehtha renchem a nih theih nâna kâwlphehtha heh lo hmanraw hman thatzia mipuite hnêna zirtirna pek leh ECBC code hmanga insak te hi he mission hnuai ruahmanna thenkhatte an ni.
8. *Water Mission*: He mission hnuai thil tumte chu sik leh sâ inthlâk danglam mila State Water Policy siam, Hydro-Meteorological Observation changtlung tak din, leh state chhûnga tui mamawh tâwk a awm theih nân lui leh a chhehvêl enkawl dân zir te hi a ni.
9. *Strategic Knowledge Mission*: He mission thil tum chu sik leh sâ inthlâk danglam chungchâng zirna te, a nghawng te, harsatna lo thleng thei te leh inruahman nâna zirtirna inpek hi a ni.

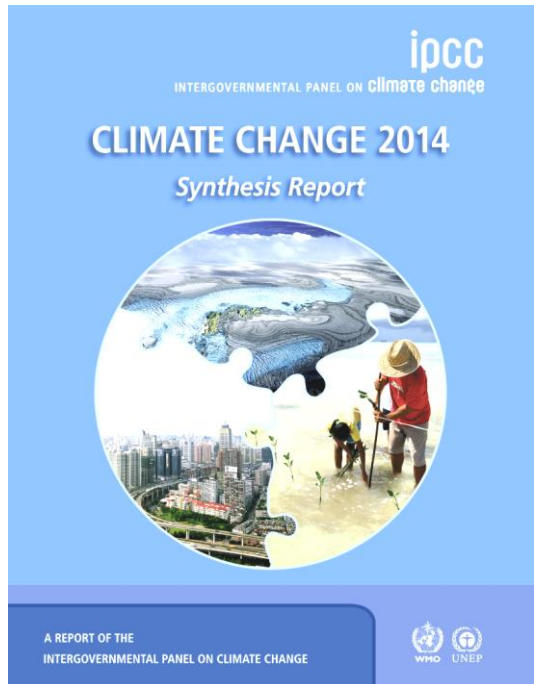
Hêng mission hrang hrangte hi, a thil tum leh a huam chin mil ang zelin Sawrkâr Department hrang hrang te hnênah mawhpurna sem a ni a. Department hrang hrang ten an mawhpurnah ang zelin an hnathawh dân kalphung te an her rem a, project thar te pawh an duang chhuak thin bawk a ni.

IPCC (Intergovernmental Panel on Climate Change) Assessment Report (AR5) 2014.

United Nations Environment Programme (UNEP) leh World Meteorological Organisation (WMO) te tangkawpin kum 1988 a an din khawvêl ram 192 chuante telna Intergovernmental Panel on Climate Change (IPCC) chuan a din tirh atanga tân thlengin khawvêl hmun hrang hrang scientist thiam bîk sâng tam tak ten climate change chungchâng zirbingnate khâikhâwmin Assessment Report (AR) a tichhuak òin a. Kum 2014 a tih chhuah

AR 5 in a târlan dânin kan khawvêl chawhuala a lumna hi kum 1900 vêl ațanga tân thleng hian Celsius degree 1 dâwnin a pung chho tawh a ni. Climate system lum chho zel hi thil Chiang tak a ni a, kum 1950 hma lam a in 1950 hnu lam hi a pung nasa leh zual bîk hlê an ti bawk. Chumiin a nghawng langsar zualte chu; ruahtui tlâk dân danglamin khawvêl chhim leh hmar lam

(poles) hnaih lama ruahtui lo pung leh khawvêl kiar lâi (equator) hnaih lama ruahtui tla tlêm hret hret te, vûr tlang te kum 30 chhûng leka hmun zaa òhena hmun 10 chuang zet tui al te, tuifinriat chîm chin tân kum 100 chhûnga inches 7 leh a chanve vêl zeta sâng te hi an ni.



Report-in a târlan dânin hêng inthlâk danglam kan sawi tâk te lo thlenna chhan bul ber chu kum 100 chuang kaltâ vêl atanga global warming lo nasa chho zel vang nia hriat a ni a. Khawvêl-in khawl (machine) chi hrang hrang kan hmelhriat ațangin boruakah greenhouse gas; hêng carbon dioxide te, methane leh nitrous oxide, adt., te an lo pung chak em em a ni. Mihring kan lo pun nasat tâk em avangin tuialththei kan hmang nasâ a, leilung kan ti danglam nasa bawk a, chumi avang chuan chhinchhiah dânin Carbon dioxide phei chu zâa sawmli lâiin a lo pung chho tawh a ni. Chu'ng carbondioxide kan tih chhuah zawng zawng atanga zâa sawmthum lâi lo hip raltu tuifinriatte pawh analna a dal ta tial tial a. Hêng mai bakah mihringte thil tih hrang hrangin a nghawngte chu khawvêl sik leh sâah kan hmu chho zel bawk.

Tin, report chuan khawvêl hmalam hunah hian greenhouse gas a pung zel a nih chuan khawvêl a lum zual zel ang a, sik leh sâ ah danglamna nasa tak a thleng chhunzawm zel bawk ang tiin a târlang a. Kum zabi 21-na a ral meuh chuan kan khawvêl hi 2.6° C atanga 4.8° C in a lum tur thu a târlang bawk.

Khawvêl lum zel avangin ruahtui tlâk dân a danglam zel ang a, khawvêl hmun tam zâwk thlirin, ruahtui tamna hmunah pun belh zelin, ruahtui tlêmna hmunah khua a ro tial tial thung dân ni a chhût a ni bawk.

Monsoon-in a tuam thlinna hmunah ruahtui hi tam zel tura ngaih a ni a. Monsoon thli te chu thaw na lo tial tialin, tui hû erawh an pai tam telh telh thung ang. Hmun tam zâwkah an lo thleng hma ang a, an liam leh hun pawh a lo tlai telh telh bawk dân a ni. Hêng avang hian ruah sûr hun chhûng pawh a rei telh telh tur a rin a ni.

Khawvêl lo lum zel hian Ozone a ti pan zel dân niin mithiamte'n an ring nghet hlê. Greenhouse gas zîng ami Methane hi zâa sawmhnihpanga vêla a pun phei chuan ozone hi chhe nasa hlê tura rin a ni.

Tuifinriat pawh a lo lum chho zel ang a, chu lumna chuan tui thuk lam pawh thleng thlâin, khawvêl a tui insem darh kual vêl dân pawh danglam hlê tur a rin a ni.

Tûn ang zel a nih chuan, 2050 vêlah chuan nipui lâiin khawvêl hmartâwpah te chuan vûr a awm tawh lo vang a, kum zabi 21-na a ral meuh chuan khawvêl hmar lama leilung khuhtu vûr (permafrost) te pawh za a 81 lâi an lo tuiral tawh tura rin a ni. Tin, vûr tuiral te avang chuan tuipui chîm chin pawh tûn aiin meter 1 lâia sâng tawh tura rin a ni bawk.

Sik leh sâ inthlâk danglam hian khawvêl a carbon kal kual vêl dân tidanglamin, chu chuan atmosphere-a cabondioxide a ti pung nasa hlê dâwn a, chu chu tuifinriat leh tuipui te'n an lo hip nasat zual dâwn avangin tuifinriat alna nasa takin a lo dal tial tial rin a ni bawk.

A tâwp berah chuan khuarêl leh mihringte avanga boruak a carbon-dioxide leh greenhouse gas dang lo tam zel avangin kum zabi 21-na piah lam thlengin khawvêl lumna a sâng zel ang a, tûn ah hian insiamtha thut pawh ni ila, kum zabi eng emaw zat chhûng chu khawvêl sik leh sâ hi danglam chho zel tura rin a ni a, chuvangin thil thleng tawh thlir a, tûn hun leh hma lam hun tur hi ngunthlûk taka ngaihtuah a ngâi tak zet a ni tih report chuan a târlang bawk a ni.

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