



Meghalaya Chimik Aro Chiring Chisik Ko Namdapatani



Talatchengani

Meghalaya a'dok gimikan chiring chibisikrango aro a'ningni chio pangchake janggi tangenga aro bang'bata songrango, salantio jakkalna aro ge'a gamanina chiring chibisikrangko jakkala.

Meghalaya a'doko bilsa gimikan mikka waoba, bang'bata biaprango china dilaniko chagrongenga. Chi nanganira salantian bariroroenga aro chi man'anira salantian komiroroenga aro iani a'selara- sal karirangni dingtangani, a'a rangko simsakgija jakkalani, a'ningni chirangko simsakgija jakkalani aro nosto ka'ani a'sel ong'a. Una agreba chiringrango jabol gale nosto ka'anichi aro chimikrangko nosto ka'ani a'selrangan ong'a. Bol- wa'arangko den'e ro'ong dokgipa, chun bikotgipa, koila bikotgipa, an'cheng kitgipa biaprango kuliani a'sel aro am'bolna den'anichi, so'e nisiatanichi aro a'ba cha'na burung bolgrim rangko nisiani a'selrangan ong'a..

larangko ripingna kam ka'engkiparagara mongsongbate chiring chibisikrangko namdapatana dingtang dingtang ostro(jekai tank aro pipe) rangko on'e kamko ka'enga. Indiba, ia chiring chibisikrangni a'bachenggipa biap aro a'a ba ro'onrangni gisepo chi skate dongna man'giparango (jekon aquifer ine ba agana) u'ie ra'ani dakna nangani aro ripinge rakkiani kamrangko da'o dipet bang'e dakkujaenga. Indiba ia kamrangko nangchongmotgipa ine ma'sie hydrogeology ba chi-a'a ni niamrangko ja'rike poraie skie ra'engkiparanga aro dingtang dingtang science ni niamrangko ja'rike ka'giparanga dakna nangani kam ong'gen ine ra'gataha. Iano dakna nangni kamrangara chiring chibisik donggipa biaprango chin dake ra'ani aro nirokani kamrang ong'gen, ia kamo dingtang dingtang bakko ra'enggipa manderangna skie on'ani aro u'iatani kamrang ong'gen, chi-a'ani ni niamrangni gimin skie on'ani donggen(hydrogeology training) , dingtang dingtang sing'sandiani aro u'ina nangani kamrangko lekkao see tariani kamrang aro a'ning chiko namdapatani kamrangna a'doko niamrangko tariani aro mikkangchi dakna nangni kamrangko on'anirang ong'gen.

Banga sorkarina kam ka'giparang aro sorkarini apalo kam ka'giparang iani bidingo dilna aro bakko ra'na gita kam ka'enga jekai Soil and Water Conservation Department, Water Resources Department, MeWDA, GIZ, ARGHYAM, Meghalaya Water Foundation, Meghalaya Institute of Governance aro gipinrang. Meghalaya Basin Development Authority ni ning'ao kamko ka'enggipa Meghalaya Institute of Natural Resource ba ia kamrangni bidingo dingtang dingtang bakko ra'enggipa manderangna skie on'anirangko dakangaha aro chiring chibisikrangko chin dakani kamrangkoba a'bachengataha. Ia ripingani kamrangko a'bachengna dingtang dingtang nanganirangna chu'gimik report ko tarianga (DPR) jedakode ia kamna nanggipa tangka paisarangko National Adaptation Fund For Climate Changes(NAFCC) niko dakchakaniko man'gen.

Nangan salona chimonge ripinganina chiring chibisikrangara namen gamchatgipa ong'a aro salanti nanganirangna jekai ringani chi aro chibimarango braanina nangchongmotgipa ong'a. Meghalaya a'dok ni 6800+ songrang chiring chibisikrango aro a'ningni chirango pangchake janggi tangenga. A'dok gimiko donggipa chiring chibisikrangko u'ina chin dakani kamrangko ba channanirangko dakkujaoba, a'dok gimiko 50,000 chiring chibisikrang ong'gen ine chanchichipna gita man'gen. Chiring chibisikrangni jokanirang komiengaha aro uni a'selara a'ningni chirangko nosto ka'ani ong'a, sam-bol aro matburunrangko nosto ka'ani aro sal kari rangni dingtangani a'sel ong'a. A'dok gimikon chiring chibisikrangko ripingna aro a'ningni chirangko simsakbate jakkalna rak'en kamko ka'enga. Ia kamo jokenggipa chiring chibisikni a'bachenggipa biap ba ong'katram biapko sandiani

ong'gen, rippingani aro simsake jakkalaniko songon a'bachengate, sorkarini dakchakani baksa songni manderangna skie on'ani aro u'iate on'ani kamrang ong'gen. Una agreba uamangna chi- a'a ni niamrangko skie aro maikai bol -wa'a aro gipin janggi gninggiparangko tange rakkina man'gen aro dingtang dingtang gadango bakko ra'e kamko ka'enggiparangni nama kamrangko dakmesoke on'e songni manderangni changa sapaniko bariatna skie on'ani kamrang ong'gen. Ia kamrangko mongsongbate bil chu'gimikko jako ra'e sorkarina kam ka'enggipa manderangna, field o kam ka'giparangna, songni dilgiparangna aro ia kamko changgiparangna dakchakgipa manderangna ong'gen.



Chiring chibisikko rippinggipa biap:

Chiring chibisikrangara a'ningo jokgipa chi na kelki gita kam ka'a aro apsan an'ningni chian jokdopile chiring pila. A'ningni chi a'ningon dingtang dingtang dake jokange chonggipa a'kol ba ramarang gita nape chimik ba chiring ong'epila. Chimik aro chiringrang ding'kario ka'sinata aro sin'kario ding'aniko on'skaa aro an'chingni wilwilaoba nitoaniko on'a. Mikka chi a'a ba ro'onranggita nape chimonggimin a'ningni chio chimongdapa aro indake chimongdapani a'sel ra'chakna man'jae dingtang dingtang a'kol ba be'gimin a'arang gita jokangskae chiring ba chimik dake jokskaa. Jokbagipa chi dal'a ong'ode chibima dake bimang ong'eskaa.

Chiring chibisikrangni ong'baani ra jrongna ba naptom na man'gipa ro'onrangg jekai rong'chun, gypsum, dolomite dakgiparango ga'akchakgipa chirang napange a'ningo chimonggimin chi ong'a. Mikka chi iandakgipa ro'onranggita napange a'ningo chimongeskaa. Ia chimonggimin chi, be'gimin a'a aro chonggipa ba dal'gipa a'kolrang jekai rong'kol rangita jokangskae chimik ba chiring dake joktaipila jekon karst spring ineba agana.

Chiring ba chimik ko a'ningni kosako jokdona draatani a'selara a'steni gisep griko chimonggimin chi jean an'tangtang barina man'gipa chi, a'ningo chi gapkame dongna man'gipa chini gadang na chubata gadango dongani a'selsa ong'a. A'ningni chi kosakona sikdoatoko man'gipaan artesian well ba chiakol o jokgipa chimik ong'eskaa. Iandakgipa chimik 300 ft tu'gipa rong'kol ba a'kol oniba jokna gita man'a aro ia chiko kosako chimongna man'gipa a'ningni chiko jedake pipe gita chi salopna man'a uandake chu'aoni on'gipa biapona salopskae chi jokani rama gita jokata. Non artesian springs

ba a'ningchi mikka chirang napange chimonggipa chirang chu'aoni onaona jokange rama kolgipu gita chiring ba chimik dake jokeskaa jean a'ningko chi wate galgipa noli gita jakkala.

Gipin dakgipa chiringragara volcano ba a'ningni ding'ana bretgipa a'brirang ni a'sel a'ningoni sikdoatako man'gipa chirang ong'a. Uni gimin iandakgipa chiringara ding'skaa jekon hot spring ineba agana. la ding'gipa chiring ba chimik ni a'sel rong'chun aro dolomite dakgiparangko jrongate rong'kol pilata.

Chiring chibisikni rokomrang:

Chiring chibisik ni rokom ko u'ie ra'anira somoi gita dingtangani aro bewalko u'ina nangchongmotgipa ong'a. Ka'mao janapgiminrang chiringni rokomrang ong'a.

Depression spring : landakgipa chiringara onbatgipa a'ao jokgipa chiring ong'a. Water table ba a'ningo chi gapkame dongna man'gipa chini gadang onbatgipa a'a baksa apsan ong'griko jokgipa chiring ong'a.

Contact spring: landakgipa chiring ba chimik ni ong'baanira chi bang'e sipna man'gipa ro'ong baksa komie sipna man'gipa ro'ong ni gisepgriko chimonggipa chi ong'a. landakgipa chi ro'onrangita jokna man'jae skate donggipa chi ong'a aro uandake a'brirango ong'bata.

Fracture spring: landakgipa chiring chibisikrangni ong'baanira chi bang'e sipna man'gijagipa ro'onranggo be'a ba a'kol donggipa gita nape jokgipa chi ong'a. landakgipa a'ningni chi mongsongbate be'gimin biaprangita joke tu'gipa ba tu'gijagipa chikol rangko ong'ata. Je biapon ia be'gipa biap gita jokbagipa chi a'ningni kosako nangdimea ua biaponin chiring a'bachenge joka.

Fault spring: landakgipa chiring ba chimik ni ong'baanira a'ningo bretgipa biap ba a'kol gita a'ningni dingtang dingtang cholchi a'ningni ding'doaniko man'e sikdoatako man'gipa chi ong'a. Chi napna man'gijagipa ro'ong baksa a'ste ni gisepgriko chimonggipa chi ra iani a'sel nangdimgrikna man'aba donga.

Karst spring: Rong'chun donggipa biapranggo chiring ba chimik ong'katgipako Karst Spring ine minga. la chiring ba chimik ni ong'baani ra rong'chun jean jrongna ba naptom na altugipa ro'onrangni jronge dingtang dingtang dake a'kol dakanichi uno ga'akchakgipa chirang jokangskae chiring ba chimik pilskagipa ong'a.



Chiring chibisikrangko ripingani biap aro sal karirangni dingtangani:

Meghalaya a'dokara sal karini dingtangana a'gilsakni ong'telaigipa obostarangko cha'grongna namen altua maina a'a- chi, ro'ong, bol wa'a rang altue dingtangna man'giparang ong'a, chijime donggipa sal karirang, dingtang dingtang songsul noksulo aro tangka paisa ba janggi tangani gadangrang dingtangani a'sel ong'a. Bilsi

2005-2006 rangko niatgenchimode Meghalayao sal karirangni dingtangani a'sel aro bol wa'arangko den'e galanichin mikka waanirang komiengaha. Indiba sal karirangni gimin agansamsoanigita de 2-3.5'c ni gita ding'ani baridapnaba donga aro 250-500 mm ni

gita biba dake baldogipa chi rangba baridapnaba donga. Una agreba, mikka waa dingtangani aro a'gilsakni ong'telaigipa obostarangba bang'bate ong'na gita agnasamsoani gnang maina wachikari 2001 onin bang'a jarangonan ong'rongbewalna bate ong'engaha. Iani a'sel batanggimin bilsil kolgrik ni gisepo chi bana ba namen bataha aro uandake a'rankari ba batskaaha. Uni gimin mikkangchi bang'a chi bana aro chi man'a neng'ani obostarangko cha'grongskagenok. Ia barienggipa obostarang aro rang'gitik a'selrang chi ni jokani niamrangko dingtangatenga aro uni a'sel chi man'aniko komiatenga aro chini a'sel ka'namgijagipa obostarang ong'enga.

Sal karirangni dingtangani a'sel chi ni bidingo dingtang dingtang namgija ong'na am'gipa obostarangara: mikka jimme waanichi aro stil ona ni chi mi misi rang nisianiko man'gen, a'a ruronge a'ani a'sal rang bon'anggan, chi bana ni a'sel nokdangrang gimagenok, sin'karini somoio ringani chi na neng'nikaniko man'gen aro burung bolgrim rang nisianiko man'gen. Chini ong'baani aro jokani niamrang dingtangjokode, ge'e game cha'enggipa aro an'chingni wilwilao altue man'aigipa bosturango pangchake janggi tangenggipa manderangna bang'a neng'nikanirangko ra'bagen.

Payment for Ecosystem Services (PES)

Chiring chibisikrang an'chingni wilwilao sam bol aro pilak jonturangna bang'a gamchatgipa kamrangko on'a. Mandeni salanti nanganina on'aيسان ong'ja indiba bang'a sam bol aro pilak jonturangna pangchakgrike kam ka'na gamchatgipa ong'a. Je chiring chibisikrangan mandeni simsakgijani a'sel nisianiko man'aha uandakgipa chiring chibisikrangko tangchaatpilanira pilaknan nangchongmotgipa kam ong'a. Uni gimin chiring chibisik ko tangchaatpilna kragipa Payment of Ecosystem Services (PES) model ko jakkalode kosakchi dongenggipa manderangnasan namgniko on'a ijawa indiba kamachi dongsoenggiparangnaba namgniko ra'bagen. Sam bol aro pilak jonturangni pangchakgrike janggi tanganira bang'a kamrangchi songsul noksul oba namgniko on'a jekai pangna jolna jokkamgipa rongtalgipa chiringrangoni a'sal gnanggipa a'aona namgniko on'an baksa carbon ko dingtangatanio dakchaka. Mande sakanti, company rang aro songsul noksul o bang'a nanganirangnan iano pangchakenga jekai ramram man'agipa bosturangna aro uarangko dingtang dingtang nanganina tarianina dakchaka, sal karirangko tom'tom ong'atanina dakchaka. Una agreba an'chingna rongtalgipa ringani chi ko on'a, chiko rongtalatgipa dake dakchaka, namgipa a'salrangko on'a, a'ani ong'baanina dakchaka aro uasan ong'aigija an'chingni dakberongwal kamrangna ba dakchaka (jekai an'chingni wilwilako nitoatanina, olakkianina, skia poraianina aro an'seng baljokanina dakchaka). Indiba da'ororo ia altue man'aigipa bosturang ba cholrangni gamchatani komiengaha. Uni gimin ia cholrangko gamchatgipa ong'atpilna bajar o an'chingni wilwilao altue man'aigipa bosturangoniko bikotna man'gipa cholrangko a'bachengna gita nanggen. PES ni mongsongbatgipa kamara an'chingni wilwilao altue man'gipa bosturangniko bikotgipa cholrang ko jringna rakkina gitara ua bostuoniko/cholniko tangka ba maiaba namdapaniko man'pilskana nanggen ine miksonge a'bachenggipa kam ong'a.

Niamrang aro mikkangchi dakna nangni kamni ja' pang:

A'dokni china niamrangko a'bachengna miksongani kamrangko dakengaha aro ia apsan se'e rakkianirangkoba dakengaha. Ia Meghalaya Water Policy ni miksonganiara simsake chi jakkalna sakantikon didiani, sakantian apsan sualgrike jakkalani, tangkame ba baikame jakkalani, name nirokani aro iako dakanichi sakantini an'seng baljokani aro janggi tanganio dakchakani ong'gen ine miksonge kam ka'ani ong'gen. Iako chu'sokgipa ong'atnara dingtang dingtang kamrangko ja'rikna nanggen aro uarangara: salantini nangana jakkalna chiko man'ani aro rongtal an'talanina ong'gen jekai sakantian a'pal re'o jakkalna chi man'ani jedakode sakantian an'seng baljoke janggi tangna gita man'gen; janggi tangani gadangko tangdoatna simsake jakkalani jedakode sakantian namgni ong'gen; chiring chibisikrangko simsake rakkiani, nirokani, nambatani aro simsake jakkale pangna jolna chu'ongatani jedakode mikkangchi an'chingni dedrang sudrangnaba dakchakani ong'gen. Iasan ong'aigija an'chingni wilwilao sam bolrang aro pilak jonturangkon nisigija name rakkiani aro a'ani pilak namgnikoba rakkiani aro chi nanganiranko komiate jedakode ia kamrangko ja'rikanichi sal karirang dingtangoba aro a'gilsakni ong'telaigipa obostarangko chagrongoba taraken nampilna gita ia janapgimin kamrang dakchakgen.

Chiring chibisikrangko namdapatana a'bachenggipa kamrang:

Spring Shed Management Initiative ba Chiring Chibisikko ripinge nirokani kam ko World Water Day, 2015 o skanggipa changna a'bachengataha.

March jao chiring chibisikangni gimin u'iatanina skianirangko on'angaha aro chiringrangko chin dake rakkina aro nirokna Field Officer aro Natural Resources baksa nangrime kamko ka'enggipa department ni chu'gimik bilko ra'e kam ko ka'enggearangna skie on'aniko dakangaha. Chiring chibisikni gamchatani, a'a- chini gimin u'ie ra'ani, jokenggipa chi ko toani, chini nama namgijako toani, apalo kam ka'giminrangko see rakkiani, mobile application gita uarangko central server o chimonge rakkie donani ko ia training o skie on'aisan ong'ja indiba dakmesoke mesokanirangkoba dakangaha

Intergrated Basin Development Livelihood Program ni ning'ao ka'enggipa kam Meghalaya Spring program, chi na aro manderangni salanti janggi tanganina mikkangchina niksamsae ka'enggipa kam ong'a. Chiring chibisikko ripinganian ia program ni mongsobatgipa mingsa miksongani ong'a.

Meghalaya Sorkarini, Meghalaya Institute of Natural Resources(MINR) jean Meghalaya Basin Development Authority(MBDA) ni ning'ao ong'a, ACWADAM, ARGHYAM, PSI, KEYSTONE, India Water Portal baksa nangrime 20 july oni 25 july 2015 ona chiring chibisikrangko tange rakkina kam ka'enggipa manderangna skie on'anirangko dakangaha. Iani miksonganiara chiring chibisikrangni gimin nangchotmotgipa u'ianirangko skie on'ani aro uarangko tangchaatpilna dakmesoke mesokani kamrangan ong'a. Una agreba chini gimin aro ro'ongni rokom rangni gimin skie ra'ani ba ong'a jekon Hydrogeology(ba hydro-chi, geology-ro'ong ko miksonga) ineba agana.

Iani aro minggipin miksonganira a'dok gimiko chiring chibisik donggiparangko am'e sandie chin dake chimonge donani kamrangba ong'a. landakgipa kamrangko gipin biaprangode ka'kuja aro ian dal'batgipa chiring chibisikrangko chin dakani kam ong'gen. Iako dakanichi chiring chibisikrangko tange rakkianina aro dingtang dingtang kamrangna mikkangchi dakchakani ong'gen.

Meghalaya sorkarini Soil and Water Conservation Department chiring chibisikrangko namdapatna aro uarangko jringna tange rakkina kam ka'enga. Chonchongipa kamrang jekai Khliehshnong Sohra songni Wah Shari chiring aro Shillong Peak ni wilwilao donggipa chiring chibisikrangko kam ko ka'engaha.

Mongsonggipa kamrangara chi tipani somoi aro bang'bate jokani somoirangko chin dake ba see rakkiani kamrang ong'a, chini nama namgija ko tosusae see rakkiani kam, GPS ko jakkale chin dakani kam aro maikai chiring chibisik tipgimin rangko dongge tarie, pokkri cho'e, chiring ko ka'penge, mikka chirangko a'ningni chiko bariatna chimonge rakkie aro chiring chibisik donggipa biaprango bol- wa'arangko ge'dape tangchaatpilani kamrangan ong'a.



See chimonge rakkiani kam aro nangrimgipa bakrangko dingtang dingtang dake mesokani kamrang

Chu'gimik chiring chibisikrangni gimin u'ie ra'e chimongna nangani kamrangko 714 chiring chibisikrangko dakangaha jean a'dokni 11 districts gimiko ong'a. Ia tarie nigimin lekkrang baksa seachi on'dapanirangko dakangaha. Chimonggimin kamranganiko nigenchimode bang'bata chiringrangan tipaha ine nikna gita man'gen aro je tangkuenggipa chiringrangba jokani komiaha ine nikna man'gen.

Ia kamni mongsonggipa miksonganira chi ko pangna jolna chu'ongate aro science ni niamrangko ja'rike chiring chibisikrangko tangkame aro name simsake niroke rakkiani kamrang ong'a. Ia sing'sandie ra'ani kamrangko ka'ania chiring chibisikrangni gimin nangchotmotgipa u'ianirangko masie ra'ani aro uarangni obostarangko u'ie ra'ani kamrang ong'a. Tipangenggipa chiring chibisikrangko hydrogeology ba chi-a'ani niamrangita tangchaatpilna man'ama man'jawa uarangni gimin ba am'e sandie u'ie ra'ani kamrangko dakanggen.

A'dok gimiko je chiring chibisikrangan tipangengachim, uarangkoba am'e chin dake see ra'aniko dakna gita miksongenga jean mikkangchi tipangenggipa chiring chibisikrangko tangatpilna dakchakniko on' gen.

Dishatmoit



Bon'atani

Meghalaya A'dok o janggi tangenggipa manderang mongsongbate chiring chibisikrango aro a'ningni chirango salantini nangana aro ge'a gamanina pangchakbata. 6861 songrang ia chiring chibisikrango pangchake janggi tangenga. Uni gimin ia ripingani kamko a'bachenganira chiko ripinge rakkianina nama cholko on'enga. A'dokni dingtang dingtang biaprangoni ia kamo bakko ra'enggearang gipin rangnaba nama dakmesokaniko on'enga aro bakko ra'enggipa sakantian chiring chibisik on' name rakkianio nama skianiko gipinrangna on'enga.

Spring Inventory and Field Sheet Meghalaya version 1

Umdong Madiasiat



Spring Inventory Field Sheet March 2015, Meghalaya Version 1				
IDENTIFICATION	Spring Name _____	Date _____ dd/mm/yy	GUIDE TO MOBILE APP Spring Name and Spring ID are Mandatory fields and must be completed to continue form. You can use your phone's inbuilt GPS for latitude & Longitude but an external GPS is more accurate, particularly for elevation - you can manually enter data from the GPS. Take a photo of the spring with your phone - it is mandatory to continue the form. You can take several and select one for uploading to database. A photo of your field sketch of the spring is also mandatory to continue form. For Discharge - If you use a measurement method other than a timed "grab" sample, please indicate and explain it in the field Notes section. The Rainfall field is meant to indicate the average annual rainfall in the area of the spring (estimates are ok, use mm). Geology parameters are optional.	
	Spring ID _____	Time _____ 2400 hrs		
	Observer _____	Dept/Agency/Organization _____		
	Location: Latitude _____	Longitude _____		Elevation _____
PHYSICAL DESCRIPTION	Village, District _____	Spring Dimension: L _____ W _____ D _____	Sketch of Spring Draw the spring to give an idea of size and scale	
	Rainfall _____	Length, Width and Depth in meters		
	Sanitation _____	List any latrines, waste dumps, gutters, seepage defecation in the area.		
	Water Use _____	Who is using water and how? For example: village irrigation or drinking water via gravity supply		
MONITORING PARAMETERS	Infrastructure _____	Any construction, supply systems (i.e. spring tap chambers, etc)?		
	Ownership _____	Field Notes: Status of Catchment _____		
OPTIONAL GEOLOGY	Discharge _____ <small>† Measure the time to fill a vessel of known volume three times and average ‡ Convert vessel volume/seconds to litres/minute (LPM)</small>			
	Water Quality Parameters: pH _____ TDS _____ EC _____			
	Salinity _____ Fecal Coliform _____ <small>Presence or absence of faecal coliform test, measurement if laboratory tested.</small>			
	Geology _____ <small>Describe the rock type, structural features, soils, etc.</small>			
Spring Type _____ Strike _____ Dip _____ Dip Direction _____ <small>Contact, fracture, depression, karst</small>				