

ATLAS OF INDIGENOUS KNOWLEDGE IN CLIMATE CHANGE ADAPTATION

In six selected districts in Ghana

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The Atlas

This atlas compiles various indicators that are used by a section of the Ghanaian community in predicting changes in their environment and in response make adjustments in their livelihoods to ensure that they are not badly impacted by predicted negative changes whilst at the same time taking advantage of predicted positive changes. The indicators used are community specific and the atlas only presents how the indicator is used in a named community, which may be different from how it may be used in another community.

DISCLAIMER:

Information provided in this book does not in any way, shape or form, implied or otherwise, necessarily express or suggest the views of the United Nations Development Programme or the Environmental Protection Agency of Ghana.



Description of Indicator

The bird looks like a duck or the cattle egret

Use of Indicator

When this bird moves from the south to the north making its sound of "Kwaaakwaaakwaa", then it means there will be more rains. When the bird flies to the south, then it is an indication of fewer rains.

Local Name: *Haahor*
Common Name:
Community: Jensue, Aowin-Swaman District, Ghana

Type of Indicator

Bird



Description of Indicator

A big forest tree

Use of Indicator

The tree sheds its leaves from January and by March the tree will be very bare, devoid of any leaves. When the leaves of the tree begin to sprout then the rainy season is near. When the time for the leaves to sprout is due and the leaves do not come back then it is an indication of a warm season with bad rainfall. The sprouting of the leaves is expected in June and when this occurs early, then the rainy season will start early. The size of the sprouted leaves is an indication of the volume of rainfall to expect.

Local Name: Onyina
Common Name: *Ceiba pentandra*
Community: Jensue, Aowin-Suaman District, Ghana

Type of Indicator

Tree



Description of Indicator

Mountain fog

Use of Indicator

When there is dense fog seen on top of the mountain during April, it is an indication of less rainfall for the season but when the mountain top is clear and no fog is seen, then that season will have more rainfall.

Local Name: Ebo
Common Name: Fog
Community: Jensuu, Aowin-Swaman District, Ghana

Type of Indicator

Weather phenomenon



Description of Indicator

A rainbow is an optical and meteorological phenomenon that causes a spectrum of light to appear in the sky when the Sun shines on to droplets of moisture in the Earth's atmosphere. It takes the form of a multi-coloured arc

Use of Indicator

When the rainbow is seen formed in the east in the early morning, then there is going to be less rainfall for the season. But when the rainbow is formed in the West in the early morning, then the season will witness more rainfall

Local Name: Yankodoen
Common Name: Rainbow
Community: Jensee, Aowin-Swaman District, Ghana

Type of Indicator

Weather phenomenon



Description of Indicator

It is bigger than the crow. The bird is blue-black in colour and has a strand of feathers on its head like that of the comb of a cock.

Use of Indicator

The sighting of this bird and the sound it makes is an indication of the approaching of the rainy season. Whenever the bird is heard, it means the rains are near. In the olden days, the elders referred to the bird as “God’s announcer” because it was regarded as coming to the community annually to announce the beginning of the rainy season. Unfortunately, this bird is no longer found in the community

Local Name: *Brobbe*

Common Name:

Community: Jensuu, Aowin-Swaman District, Ghana

Type of Indicator

Bird



Description of Indicator

A large deciduous forest tree ranging in height from 15 to 46 m, branchless for up to 30 m. It has a very fast rate of growth, straight stem and self-pruning habit, even at an early stage.

Use of Indicator

These trees do not readily shed leaves throughout the year. Most cocoa farmers do plant them in their farms because it can provide shade throughout the year. However, these trees shed their old leaves just as the rain season is about to start and sprout new leaves. So as soon as the tree's leaves begin to drop, it is an indication that the rainy season will start soon.

Local Name: Emire

Common Name: *Terminalia ivorensis*

Community: Jensue, Aowin-Swaman District, Ghana

Type of Indicator

Tree



Description of Indicator

The bird moves in a group and sleeps in caves. They look very much like the sparrow but are smaller.

Use of Indicator

The movement of this bird is an indication of impending drought or rainy season. When these birds move into the community, it is an indication of no rains. This is so because they leave in caves in the soil and do not stay in places that are wet. Conversely, when these birds are seen moving away from the community, it is a signal that the rainy season is imminent.

Local Name: Ako-wre
Common Name: Black bee-eater (*Merops gularis*)
Community: Jensuu. Aowin-Swaman District. Ghana

Type of Indicator

Bird



Description of Indicator

Forest tree

Use of Indicator

The tree does not readily shed leaves throughout the year. Most cocoa farmers do plant them in their farms because it can provide shade throughout the year. However, these trees shed their old leaves just as the rain season is about to start and sprout new leaves. So as soon as the tree's leaves begin to drop, it is an indication that the rainy season will start soon.

Local Name: Ofram
Common Name: *Terminalia superba*
Community: Jensuu, Aowin-Swaman District, Ghana

Type of Indicator

Tree



Description of Indicator

A visible body of very fine water droplets suspended in the atmosphere at altitudes ranging up to several miles above sea level. It is usually seen in the sky but gets very dark when it's almost due to rain

Use of Indicator

When the dark clouds form in the East, it is an indication of sure rainfall in Enchi

Local Name: Mununkum
Common Name: Clouds
Community: Enchi, Aowin-Swaman District, Ghana

Type of Indicator

Weather phenomenon



Description of Indicator

Common frogs usually found around water bodies.

Use of Indicator

When the frogs are heard croaking in the dry season, it is an indication that the rainy season is near. Now the frogs do not even start croaking and the rains would have started long time. When the frogs are heard in May to June it is an indication of the rainy season approaching. Currently, the frogs still make the sound. Their sound is said to call the rains so when they are heard together at a certain time of the year, it means it's time for rains. The frogs are usually heard in June or July.

Local Name: Kyelern
Common Name: Frog
Community: Old and New Yakasi, Aowin-Swaman District, Ghana

Type of Indicator

Amphibian



Description of Indicator

Kakapenpen is a small tree up to 8m. The branches are whorled and the nodes enlarged and lumpy. Flowers are minute and sweet-scented. Fruits are fleshy and red in colour.

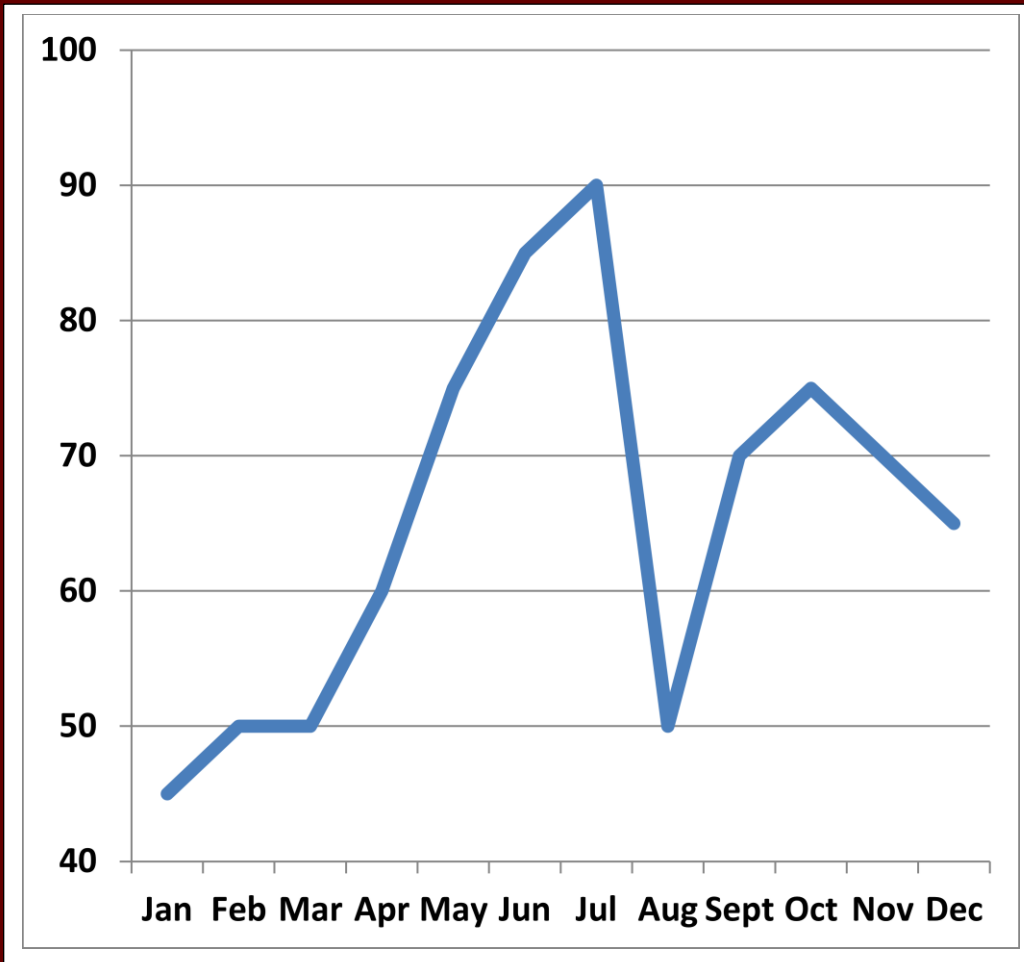
Use of Indicator

This tree bears fruits and when it flowers, it an indication that the

Local Name: Kakapenpen
Common Name: *Rauwolfia vomitoria*
Community: New Yakasi, Aowin-Swaman District

Type of Indicator

Tree



Description of Indicator
Seasons of the year

Use of Indicator
The community has a known weather pattern that they rely on to determine which stage of the year they have reached. June and July usually come with very heavy rains and August usually has less rain and from September to October, there are heavy rains again which usually caused flooding

Type of Indicator
Weather Phenomenon

Local Name: Nsutobre
Common Name: Rainfall pattern
Community: New Yakasi, Aowin-Suaman District, Ghana



Description of Indicator

Millipedes are arthropods with two pairs of legs per segment (except for the first segment behind the head which does not have any appendages at all, and the next few which only have one pair of legs. The millipedes have very elongated cylindrical bodies.

Use of Indicator

When millipedes and centipedes are seen climbing to higher grounds when the rains start, it is a signal that there is going to be flooding in the community. They are noted to first sense the flooding in the soil and they begin to move out to the higher ground or hills.

Local Name: Kokoberte
Common Name: Millipede
Community: Old Yakasi, Aowin-Swaman District, Ghana

Type of Indicator

Arthropod



Description of Indicator

Thunder and Lightning

Use of Indicator

When there is more thunder and lightning in the month of March prior to the rainy season, it is an indication of a very strong rainy season which will flood the community

Local Name: Salaman
Common Name: Thunder and Lightning
Community: Old Yakasi, Aowin-Swaman District, Ghana

Type of Indicator

Weather phenomenon



Description of Indicator

The tree grows to 60-70 m (200-230 ft) tall and has a very substantial trunk up to 3 m (10 ft) in diameter with buttresses. The trunk and many of the larger branches are often (but not always) crowded with very large, robust simple thorns

Use of Indicator

When it starts gaining leaves after it has shed its leaves from December to March, then it is an indication that the rainy season is near

Local Name: Onyina
Common Name: *Ceiba pentandra*
Community: Old Yakasi, Aowin-Swaman District, Ghana

Type of Indicator

Tree



Description of Indicator

Forest Tree

Use of Indicator

This tree usually bears fruit in June/July and many birds go to eat the seeds. Anytime the fruits come on the tree and the birds come to eat, it is an indication of the imminent rainy season. When this happens it means there will be strong rains. When this rains come, it comes to wash away the moth which is formed on the lands. This tree is available and still bears

Local Name: Tanua

Common Name:

Community: Old Yakasi, Aowin-Swaman District, Ghana

Type of Indicator

Tree



Description of Indicator

It is a species of hornbill in the Bucerotidae family.

Use of Indicator

These birds leave the community when it is the dry season and return to the community when the rainy season is approaching. Previously, these birds were noted to leave the community from December to March and this always coincided with the dry period when they experienced no rains. So when the birds are heard in March it means the rain season is approaching. These birds are no longer found in the community because all their habitats which were trees have been cut.

Local Name: Owam
Common Name: Black-casqued Hornbill (*Ceratogymna atrata*)
Community: Jensuu, Aowin-Suaman District, Ghana

Type of Indicator

Bird



Description of Indicator

The bird has black feathers with a long beak and also a long tail. It is not big

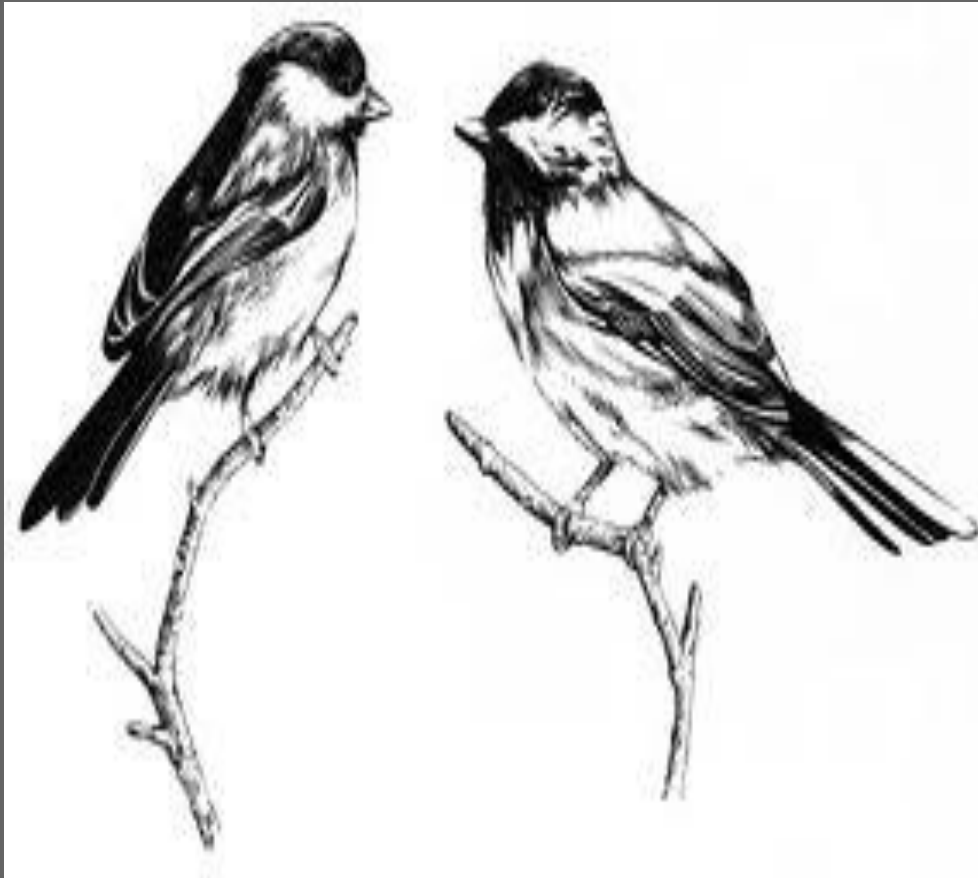
Use of Indicator

When the birds move into the community, it is an indication that the rainy season is near.

Local Name: Akyenkyena
Common Name: Pied hornbill (*Tockus fasciatus*)
Community: Jensue, Aowin-Suaman District, Ghana

Type of Indicator

Bird



Description of Indicator

These birds are usually sighted as male and female, around January to March

Use of Indicator

The appearance of the bird, usually in early January indicates that rains will be good for the impending rainy season. When the bird appears, it is heard throughout the community because it makes a lot of noise.

Local Name: Akpo
Common Name:
Community: Tegbui, Keta Municipality, Ghana

Type of Indicator

Bird



Description of Indicator

Brownish with pincers which they use to bite. When during farming, one hit their mud, they bite. Wherever they are, the python cannot be found there because the ants can kill it. The likei are not poisonous.

Use of Indicator

Whenever the ants leave highland to the lowland near the streams or rivers, it is an indication of little rain and no floods. But when they move from the stream area to the upland, it means there will heavy rains which can cause flooding. So they are an indicator of both higher rainfall and no rainfall.

Local Name: Likei or zato
Common Name: Black ants
Community: Tegbui, Keta Municipality, Ghana

Type of Indicator

Insects



Description of Indicator

Its plumage is largely grey above, and off-white below. Adults have a white head with a broad black supercilium and slender crest, while immatures have a dull grey head. It has a powerful pinkish-yellow bill, which is brighter in breeding adults. It has a slow flight, with its long neck retracted (S-shaped). It breeds in colonies in trees close to lakes, the sea-shore or other wetlands, although it will also nest in reed beds. It builds a bulky stick nest. It feeds in shallow water, catching fish or frogs with its long bill.

Use of Indicator

The bird appears to signify the end of the rainy season. The bird moves around to find ponds to settle at the end of the rains.

Local Name: Akra
Common Name: Grey Heron
Community: Dzita, Keta Municipality, Ghana

Type of Indicator

Bird



Description of Indicator

A small to medium-sized bird. The upper parts are blackish and its under-parts are white heavily streaked with black. The under-wing flight feathers are white with a black trailing edge. The under-wing coverts are mostly black with white spots.

Use of Indicator

The appearance of the hawk signifies the end of the rainy season. In the community, the farming season starts at the end of the rainy season and that is the time the hawk comes home to catch chicken. So the appearance of the hawk signifies both the end of rainy season and also the beginning of the farming season.

Local Name: Avakpo
Common Name: Black Kite
Community: Dzita, Keta Municipality, Ghana

Type of Indicator

Bird



Description of Indicator

Long-legged frog with brownish camouflage skin. The frog is found around the lagoons and ponds.

Use of Indicator

The croaking of the frog is an indicator of imminent rains. When the frog starts croaking in the afternoon, it means there is going to be rains in the evening. The croaking of the frog is not an indication of the intensity of rainfall but that it will rain.

Local Name: Sopena
Common Name: Frog
Community: Dzita, Keta Municipality, Ghana

Type of Indicator

Frog



Description of Indicator

Degree of hotness of the ground

Use of Indicator

The ground becoming very hot in early June is an indication of a very heavy rainy season

Local Name:

Common Name:

Community: Dzelukope, Keta Municipality, Ghana

Type of Indicator

Hot ground



Description of Indicator

A multi-coloured arc that appears in the sky

Use of Indicator

The appearance of the rainbow during the rainy season signals the end of the rainy season.

Local Name: Anyieve
Common Name: Rainbow
Community: Dzelukope, Keta Municipality, Ghana

Type of Indicator

Weather phenomenon



Local Name: Mavidetsi
Common Name: White-faced whistling duck
(*Dendrocygna viduata*)
Community: Anloga, Keta Municipality, Ghana

Description of Indicator

The bird looks like a little duck. The local name is translated in English as “I will make your soup taste good”. It has a long grey bill, long head and longish legs. It has a white face and crown, and black rear head. The back and wings are dark brown to black, and the underparts are black, although the flanks have fine white barring. All plumages are similar, except that juveniles have a much less contrasted head pattern.

Use of Indicator

Appearance of the birds signifies the beginning of the rainy season because the birds lay their eggs prior to the rainy season.

Type of Indicator

A river bird



Description of Indicator

A flowering grass normally found along the beaches

Use of Indicator

When the grass flowers, it is an indication that the rains are due and could start any moment from the time the flower appears.

Local Name:

Common Name: Grass

Community: Anloga, Keta Municipality, Ghana

Type of Indicator

Grass



Description of Indicator

They are elongated metameric animals with one pair of legs per body segment. They are usually brown in colour.

Use of Indicator

When millipedes and centipedes are seen climbing to higher grounds when the rains start, it is a signal that there is going to be flooding in the community. They are noted to first sense the flooding in the soil and they begin to move out to the higher ground or hills.

Local Name: Kankabi
Common Name: Centipedes
Community: Old Yakasi, Aowin-Swaman District, Ghana

Type of Indicator

Arthropod



Description of Indicator

It is dark and big, it is inside a hole always, it is like the fist of an adult, and when it's croaking the neck gets big

Use of Indicator

It indicates that there will be rain when it is heard in the rainy season then it will rain.

Local Name: Ngban
Common Name: Crowned Bullfrog (*Hoplobatrachus occipitalis*)
Community: Nangodi, Talensi-Nabdam District, Ghana

Type of Indicator

Amphibian



Description of Indicator

It's a relatively small ant that moves around carrying its eggs

Use of Indicator

The ants live on the ground, if it's about raining, you see them in great quantities and in rows, you see them carrying their eggs, it signifies that it is time for the rain to come. Sometimes it rains on the very day the ants are sighted moving with their eggs.

Local Name: Sansi
Common Name: Black Ants
Community: Nangodi, Talensi-Nabdam District, Ghana

Type of Indicator

Insect



Description of Indicator

It is the ordinary frog mostly found around houses

Use of Indicator

The frog signals that everyone should start sowing, because rain has come but if the frog does not come people don't sow. When the frog cries, it indicates time for sowing

Local Name: Aponna
Common Name: *Amietophrynus regularis*
Community: Nangodi, Talensi-Nabdam District, Ghana

Type of Indicator

Amphibian



Description of Indicator

A very thick dark cloud gathering at the eastern part of the community

Use of Indicator

When thick clouds gather in the Eastern part of the community, it means there will be rainfall

Local Name: Sangbon
Common Name: Clouds
Community: Nangodi, Talensi-Nabdam District, Ghana

Type of Indicator

Weather phenomenon



Description of Indicator

They are black. They live around houses, sometimes under pots of water.

Use of Indicator

When it's about to rain the ants carry their eggs to a safe place, they will later bring the eggs back. Anytime the ant is seen carrying its eggs, it means its getting nearer to the rainy season, sometimes one week you see the rain or maybe four days.

Local Name: Kachi sabliga
Common Name: Black Ants
Community: Pwalugu, Talensi-Nabdam District, Ghana

Type of Indicator

Insect



Description of Indicator

It is the common frog usually seen around houses.

Use of Indicator

When it croaks it means rain is coming, sometimes when it croaks there will be rain the same day, or the day after.

Local Name: Kampune
Common Name: *Amietophrynus maculatus*
Community: Pwalugu, Talensi-Nabdam District, Ghana

Type of Indicator

Amphibian



Description of Indicator

Thunder is the sound made by lightning. Depending on the nature of the lightning and distance of the listener, thunder can range from a sharp, loud crack to a long, low rumble

Use of Indicator

It indicates that the raining time near. If that is the first time before the first rains, it will take one month, but if the rains have come already then it will rain that very day or the following day

Local Name: Nyakamaa
Common Name: Thunder
Community: Pwalugu, Talensi-Nabdam District, Ghana

Type of Indicator

Weather phenomenon



Description of Indicator

Every year when the nuts are emerging, then it shows that the rains are getting nearer.

Use of Indicator

The moment you see it flowering then the rains are coming. When it flowers more, then the rains will be good. When lots of nuts are seen emerging then the rains are getting nearer

Local Name: Kanga
Common Name: Shea nut tree
Community: Pwalugu, Talensi-Nabdam District, Ghana

Type of Indicator

Tree



Description of Indicator

Movement of wind from the west to east. The direction of wind is identified using the movement of sand/dust thrown into the air

Use of Indicator

When the winds move from west to east it indicates that the rains are getting nearer, but you can't know that exact day that it will rain

Local Name: Dimbila
Common Name: Wind
Community: Pwalugu, Talensi-Nabdam District, Ghana

Type of Indicator

Movement of wind



Description of Indicator

The ants are tiny and reddish in colour. They move in columns.

Use of Indicator

The ants are believed to commune with God. When they get the information from God that it is going to rain they collect their eggs otherwise rains would destroy them. So when these ants with their eggs are sighted, it is an indication of approaching heavy rains.

Local Name: Zulo
Common Name: Ants
Community: Yenduri, Talensi-Nabdam District,
Ghana

Type of Indicator

Insect



Description of Indicator

Bearing of flowers

Use of Indicator

The moment it flowers the rain will start before the flowers turn into fruit. When they see the flowers, three or four days' time, it will rain. If the rains are not good, it does not flower well.

Local Name: Chua
Common Name: Baobab tree
Community: Pwalugu, Talensi-Nabdam District, Ghana

Type of Indicator

Tree



Description of Indicator

The grasshopper is either green or brown in colour

Use of Indicator

When grasshoppers appear in their numbers in the month of April, it is an indication that it may not rain. When they appear in their numbers in March/April, it means the rains will not be good for the season.

Local Name: sooree or sonsobo
Common Name: Grasshopper
Community: Bankpama, Wa West, Ghana

Type of Indicator

Grasshopper



Description of Indicator

When attacked, threatened or provoked, the “Pontizie” can increase in size by bloating itself up with air and looking big.

Use of Indicator

When this frog is heard or seen in March or April at the riverside, it is an indication of good rainfall. This is not a frog that makes sounds but when they are seen, it is an indication of good rains in the season

Local Name: Pontizie
Common Name: Frog
Community: Bankpama, Wa West District, Ghana

Type of Indicator

Amphibian



Description of Indicator

A little frog about the size of a thumb which is dark in colour with some white stripes on its back. It lives at the riverside.

Use of Indicator

When it starts croaking in the month of March, it is an indication of good rainy

Local Name: Danyieane
Common Name: Frog
Community: Bankpama, Wa West District, Ghana

Type of Indicator

Frog



Description of Indicator

Duwor tree produces a black-brown substance made from a local tree. It is very nutritious and also used for other purpose.

Use of Indicator

If the dawadawa tree flowers during a warm weather, it is an indication of a good rainy season. But when the dawadawa tree flowers and fruits in a clear, cold weather, then the rainy season will have little rain.

Local Name: Duwor
Common Name: Dawadawa tree
Community: Bankpama, Wa West District, Ghana

Type of Indicator

Tree



Description of Indicator

The shea fruit consists of a thin, tart, nutritious pulp that surrounds a relatively large, oil-rich seed from which shea butter is extracted.

Use of Indicator

When the shea nut fruits are matured by April/month and collection of them has started, it is a good indication of a good rainy season. But when the fruiting goes further than this date, then the rainy season will be bad with low rainfall

Local Name: Taama
Common Name: Shea nut tree
Community: Bankpama, Wa West District, Ghana

Type of Indicator

Fruit



Description of Indicator

The millipede is brown in colour and has 2 pairs of legs per segment. They have very elongated cylindrical bodies

Use of Indicator

When they are seen moving in a group in March, then the rainy season will be start early and will be good. Any farmer seeing the millipedes or centipedes after the month of December or in January when it is generally dry knows that the rainy season will be good.

Local Name: Abukanyile
Common Name: Millipede
Community: Jubamsie, Wa West District, Ghana

Type of Indicator

Arthropod



Description of Indicator

They are black in colour and very small in size. When these ants are moving out of the soil, they all move out of the habitat totally. Wherever they are going, they always move forward till wherever they are going and never turn back. When they are returning to their habitat, they always come through a different path than the one on which they left

Use of indicator

There are some ants that when they come up from the soil in their numbers in March then the rainy season will be good. When these ants are moving, they create a visible path and when that path is followed till a point and its continuation cannot be seen, it is an indication of bad rainfall. Their movement is usually in March and when they are seen moving to the Black Volta and there is no break in their path, then the rains will be good but when there is a break then it means there will be a break in rainfall around May or June.

Local Name: Fiinfiin
Common Name: Black ants
Community: Jubamsie, Wa West District, Ghana

Type of Indicator

Insect



Description of Indicator

When some caterpillars called “Nyanyire” in the local language appear in their numbers, usually from March to April and eats up all the grass, it is a sign of a dry period to follow.

Use of Indicator

When the caterpillars called “Nyanyire” in the local language appear in their numbers, usually from March to April and eats up all the grass, it is a sign of a dry period to follow.

Local Name: “Nyanyire
Common Name: Caterpillar / Larva
Community: Talawana, Wa West District, Ghana

Type of Indicator

Caterpillar



Description of Indicator

The shea fruit is round and greenish-yellow in colour. The fruit is produced once each year.

Use of Indicator

When the fruits of the shea trees start to ripe, the community begins sowing their seeds for the planting season because it is an indication of the onset of the rains

Local Name: Zulim sablehi
Common Name: *Vitellaria paradoxa*
Community: Goakodow, West Mamprusi District, Ghana

Type of Indicator

Fruit



Description of Indicator

Black in colour, and very small

Use of Indicator

Whenever the ants are seen carrying their eggs from one point to the other, it signifies rainfall

Local Name: Silinsaa
Common Name: Ants
Community: Goakodow, West Mamprusi District, Ghana

Type of Indicator

Insect



Description of Indicator

The ducks have long claws on their feet and a wide flat tail. The males are bigger than the females.

Use of Indicator

Whenever the duck is seen flapping its wings in a dry place, then there is going to be drought, but when it does so in wet place, then it signifies rainfall is imminent.

Local Name: Gumazei
Common Name: Duck
Community: Goakodow, West Mamprusi District, Ghana

Type of Indicator

Bird



Description of Indicator

It is a perennial shrub, not more than half a meter height

Use of Indicator

When the leaves coil, then it signifies hot temperature, but when the leaves are straight and normal, then ambient temperature is normal and relatively cool.

Local Name: Fufruloley
Common Name:
Community: Karemenga, West Mamprusi District, Ghana

Type of Indicator

Shrub

