



# **CLIMATE CHANGE MITIGATION AND ADAPTATION STRATEGIES, COMMUNAL CONFLICT MANAGEMENT**

**TRAINING HANDBOOK**

**By Academic Associates PeaceWorks**

# Acknowledgements



Academic Associates PeaceWorks is grateful to everyone who contributed to developing and publishing the training handbook on “*Climate Change: Mitigation and Adaptation Strategies, Communal Conflict Management.*”

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# Introduction

## Wetin Be Climate Change?



*Drought*



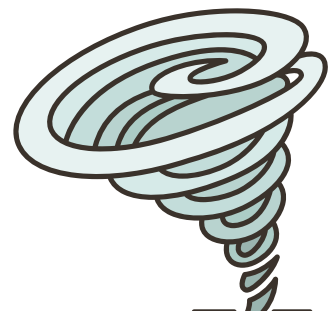
*Flooding*



*Erosion*



*Heat Wave*



*Hurricane*

Climate Change na di long time change wey dey happen for our weather patterns. Na d big big industries wey dem create more than 100 years ago (Dem call am industrialization era) and human being (Me and you follow cause am). We dey troway and burn waste anyhow inside water and land and dey cut down trees. Na all dis things follow cause climate change. E fit cause hot temperature, heavy rain, sea level go high, flood go dey happen, and other environmental wahala.



# Importance of Understanding Climate Change

## Why E Important Make We Sabi about Climate Change

- **Protect Our Livelihoods:** Climate Change fit affect di way we dey farm, fish, and work.
- **Prepare for Extreme Weather:** When we sabi about climate change we fit prepare for heavy rain, flood, and strong wind.
- **Save our Environment:** When we sabi about climate change, we fit prepare for heavy rain, flood, and strong wind.
- **Improve Our Health:** Di hot weather, heavy rain, and flood fit bring sickness like malaria, cholera, and heatstroke.
- **Support Our Community:** When everybody for di community sabi climate change we fit join hand together to fight am.
- **Adapt our Farming and Fishing Practices:** We fit learn new farming and fishing practices wey go help us deal with di changing weather patterns. This fit include make we plant drought resistant crops like millet, corn or vegetables like ugu (pumpkin leaf) and also make we use sustainable fishing methods.

## Protecting Our Mangrove - *How We Wan Take Protect Our Mangrove Forest*

1. Make mangrove forest special area wey people no go fit destroy.
2. Manage well by taking resources like wood and fish small small, no too much.
3. Plant new mangrove trees for places wey dem don cut before.
4. Make community people sabi why e good to protect mangrove.
5. Show people say mangrove dey catch carbon and fight climate change.
6. Stop dirty water from farm, toilet and factory from enter mangrove area



*Healthy Mangrove in the Niger Delta*



*Polluted Mangrove in the Niger Delta*

# Impacts of Climate Change on Our Communities

## How Climate Change Dey Take Affect Awa Area

Climate Change dey affect our communities well well. E dey cause sea level rise, heavy storms wey dey lead to flood, erosion, and make our river/sea acidic. Dis kin wahala dey soil our land, and livelihoods, and e fit force pipo to move comot.

To handle am, we fit plan how we go use our land build defense and restore our environment. But di main tin say we need to reduce di carbon wey we dey release into di atmosphere to prevent more katakata for our area. Some of the impacts of climate change in our region na:

### **Flooding**

Flooding dey worry our communities. Every year, rain go dey fall well well and rivers and creeks go flow too much causing serious wahala. Dis flood dey destroy our houses, farms, and roads, and e dey make plenty people lose their property and sometimes their lives. De flood dey also cause health wahala because of dirty water wey dey spread sickness.



*Houses along waterways in Otuoke community before the flood*



*Submerged houses in the Otuoke community after the flood*

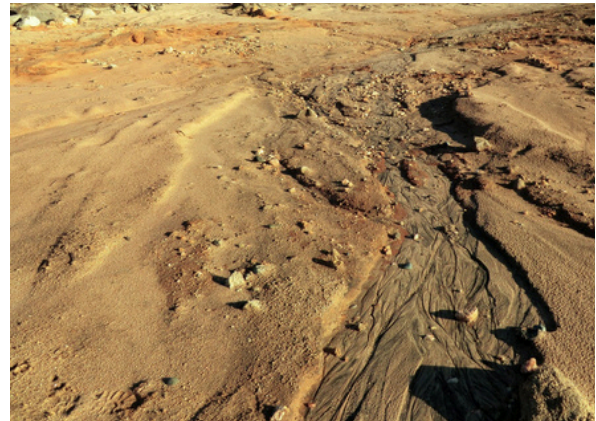


## **Erosion**

Erosion dey scatter our communities. D way di sea dey wash away sand and land, e dey cause big problem. Erosion dey make people lose their houses, farms, and roads. E dey also affect fishing and other businesses because our land dey disappear.



*Deep erosion in Ogwashi-Uku community, Delta State*



*Surface erosion in Patani community, Delta State*

## **Bush Burning and Deforestation**

Bush burning and deforestation dey affect our communities bad. When people burn bush or cut down trees, e dey cause soil erosion and make di land weak. Dis kind thing fit lead to flood and landslide. E dey also spoil di natural habitat for animals and fish wey people dey depend on.



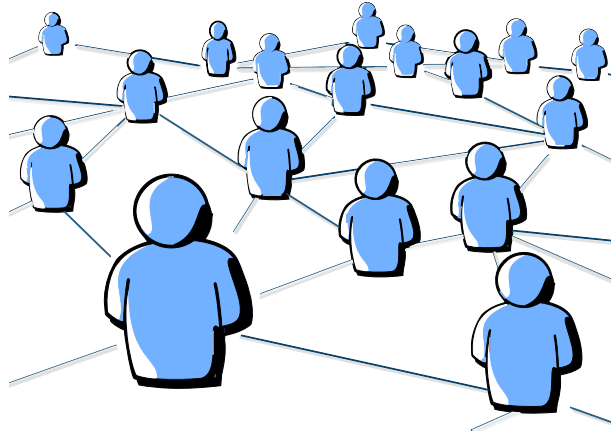
*Bush Burning in our communities*



*Deforestation/over-logging in Niger Delta*

# Climate Change Mitigation and Adaptation Strategies

## Wetin We Fit Do for Our Community?



D steps go help us protect coastal communities from de bad effects of climate change and make sure say dem fit live well well for de future. De climate change mitigation steps are:

- Plant Mangroves and Trees: Make we plant mangrove and plenty trees for de coastline. E go help protect de land from seawater and stop erosion.
- Build sea walls and Barriers: Make we build big wall and barrier for de beach side. E go stop de big water from enter town when sea rise.
- Improve Drainage Systems: make we fix and build better drainage system. E go help clear water fast fast when e rain plenty.
- Promote Sustainable Fishing: Make we fish with sense. No overfish, make we allow de fish breed well well. E go help keep de fish plenty for de future.
- Educate the Community: Make we teach our people about climate change and wetin dem fit do to protect their environment. Knowledge na power.
- Use Renewable Energy: Make we use energy wey no go spoil de environment like solar and wind. E no go cause pollution and e go last long.
- Create and Enforce Laws: Make government make laws wey go protect de coastline and enforce am well well. Anybody wey break de law must pay fine or face punishment.
- Support Local Agriculture: Make we support local farmers to grow food in ways wey no go spoil De Land. E go reduce de need to import food from far places and e go help de environment.
- Encourage Waste Management: Make we manage our waste well well. No throway dirty for sea or river. Make we recycle and dispose waste properly.
- Prepare for Emergencies: Make we prepare for emergency well well. Get plan for flood, and other disaster. Make we get rescue team and emergency supplies ready.

## Climate Adaptation Strategies for Coastal Communities



*Draining Fish Pond at Adonai Fish Farm in Warri, Delta State*

**Build stronger houses and structures:** make sure say de houses wey people dey live inside and other structures for de community strong well well. Dis go fit handle heavy rain, strong wind, and even flooding.

**Plant mangroves and trees:** Mangroves and trees dey help stop de water from spoil de land. E go also help reduce de power of waves wey dey come from de sea.

**Raise de ground level:** for some places wey dey flood plenty, e good to raise de ground level. Dis go make sure say de water no go enter people dem house.

**Early warning systems:** set up early warning system wey go alert people if bad weather like storm or heavy rain dey come. This go give dem time to prepare or move go safe place.

**Build sea walls and barriers:** build sea walls or barriers wey go block de sea water from enter de land. Dis go help protect de community from erosion and flooding.

**Create drainage system:** Good drainage system go make sure say water no go gather for one place, but e go flow comot well well. Dis go reduce flooding.

**Educate de Community:** Teach people about climate change and wetin dem fit do to protect demselves, make dem sabi how to respond when disaster come.

**Develop alternative livelihoods:** help people find other ways to make money wey no go depend on de sea, like farming or small business. This go help if de sea no fit give dem fish again.

**Relocate vulnerable communities:** For places wey de risky too much, sometimes e better to move de whole area go safe place. Our community leaders and local governments fit help us with dis one.

**Use traditional knowledge:** Listen to de elders and people wey sabi De Land well well. Dem get experience and knowledge wey fit help find solution.



# Climate Smart Agriculture

## Wetin Be Climate Smart Agriculture?

- <sup>1</sup> Climate Smart Agriculture (CSA) na new way to farm wey go help us handle climate change.
- E dey help make sure we get better food, protect our environment, and make our farms strong



Increase Productivity



Enhance Resilience



Reduce Emissions

**Climate Smart Agriculture**

## Wetin We Wan Achieve with Climate Smart Agriculture (CSA)?

- Make food plenty;
- Reduce greenhouse gas emissions;
- Make farm work strong for climate change.



*Corn*



*Cassava*

<sup>1</sup> The concept is traced to the Food and Agriculture Organisation <https://shorturl.at/1UIMi>

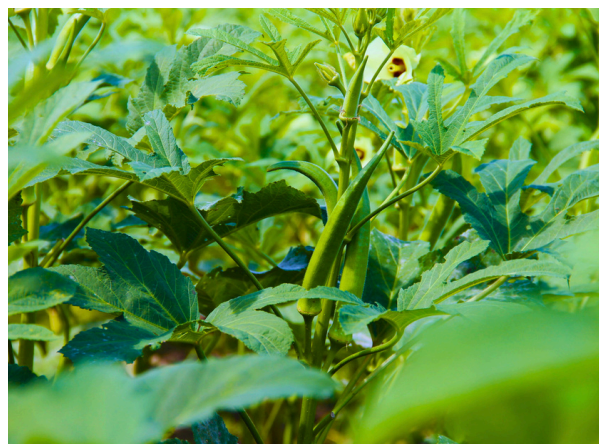
<sup>2</sup> Climate Smart Agriculture Chart as explained by National Agriculture in the Classroom <https://agclassroom.org/matrix/lesson/746/>

## How E go Benefit Us?

- Better crop yields;
- Less wahala from drought and floods;
- More money for farmers;
- Protect our land and water.



*Lettuce*

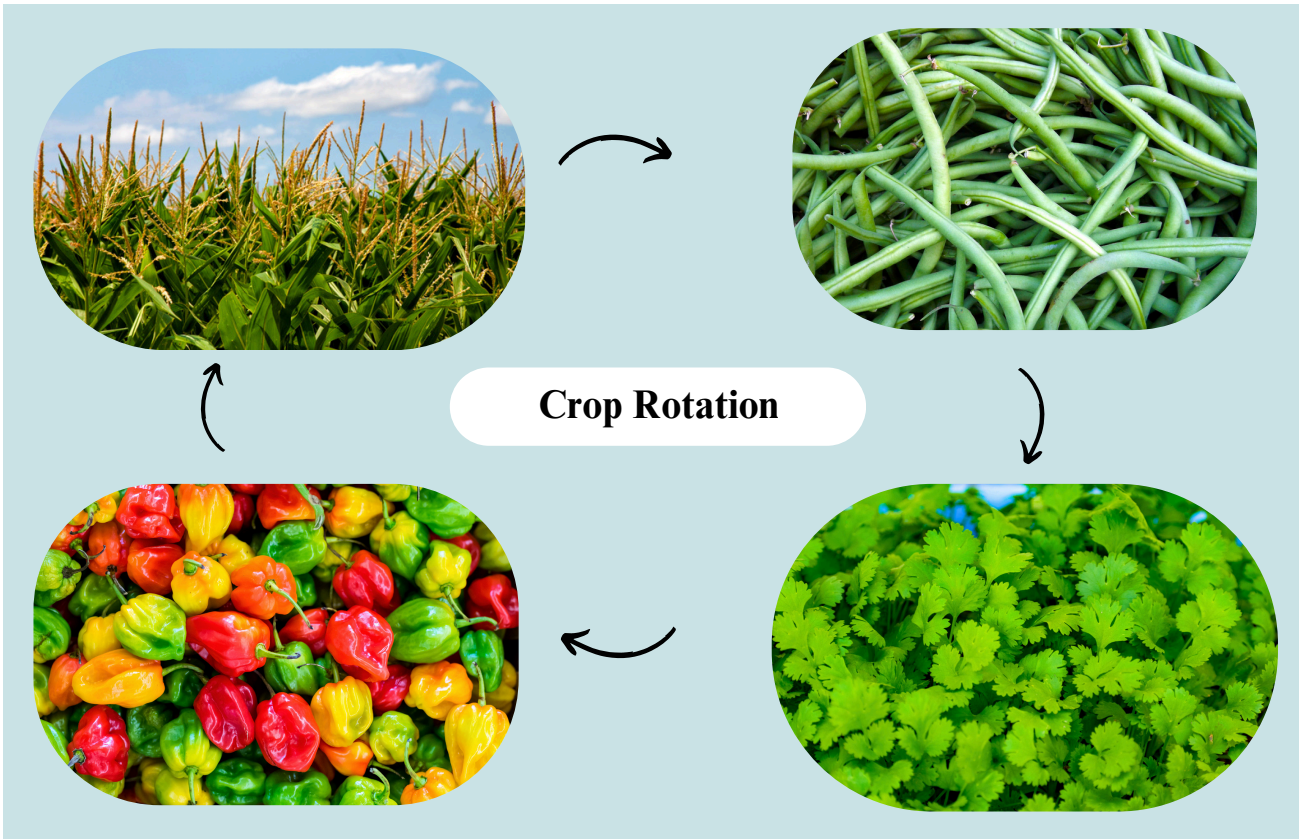


*Okra*

## Wetin We Fit Do Wey Go Make Us Climate Smart Agriculturists?

1. Plant cover crops like soybeans, sorghum (grass wey dey help control erosion and improve soil organic matter), groundnuts, millet, etc;
2. Use compost (fruit peels, eggshells, leaves, small branches, dead plants, chicken poo, etc.) and manure (cow, chicken, horse, goat, pig manure, etc.);
3. Crop rotation na farming method wey farmers dey change de type of crop wey dem plant for de same piece of land each season or year. Dis one dey help improve soil health, reduce pests and diseases, and increase crop yield. For example, 1st year farmer Okoro plant corn for one piece of land, for 2nd year instead of corn, he plant beans for de same land. Beans dey fix nitrogen for soil, which go help improve soil fertility. D 3rd year, he plant cassava for de same land. Cassava no need too much nitrogen, so e go benefit from de nitrogen wey beans put for soil. For the 4th year, Farmer Okoro come plant vegetables like tomatoes and pepper for de same land. These crops go enjoy de nutrients wey dey de soil from the other crops. By rotating de crops like Farmer Okoro, we go make sure say de soil no go tire, and pests and diseases no go spread easily. Dis go give better harvest and healthy crops.
4. Plant trees and shrubs. Trees like Mango, orange, neem, mahogany, coconut, pawpaw, guava, and iroko, baobab, etc. And Shrubs like hibiscus flower, rosemary, aloe vera, lemongrass, lantana, etc.





## How to Take Care of Awa Soil

- No till or reduce tilling;
- Dey add organic matter like compost (chicken droppings or cow manure, etc.);
- Try to dey practice crop rotation.



*Integrated Crop-animal Farming*



*Cover Cropping*

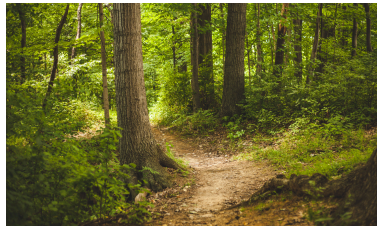


*Intercropping*

### Climate-Smart Traditional Agricultural Practices



*Crop Rotation*



*Agroforestry*



*Traditional Organic Composting*



## How to Properly Manage Water



*Farmer irrigating his field*

- Use drip irrigations;
- Collect and store rainwater;
- Mulch (na material wey people dey put for top of soil to help protect am , keep am moist, control weed, and improve soil health) to keep soil moisture. Examples of mulch na dry leaves from trees, grass, straw, wood chippings, compost and bark from trees.

## How to Manage Awa Crops

- Choose de right crops for de climate.
- Use improved seeds like corn (Oba super 2 or drought tego), rice (faro 44),beans (Sampea 11), Cassava (TMS 30572), tomato (Roma VF),etc.
- Try dey practice intercropping



*Improved seed varieties*

## How to Control Pest and Disease



*A farmer spraying his field with natural pesticide*

- Use natural pesticides i.e those things wey dey naturally pursue pests/insects from awa crops. Examples na garlic spray (made from rounded garlic cloves mixed with water), hot pepper spray, neem oil (gotten from grounded neem seeds, etc).
- Rotate crops to break pest cycles;
- Spraying natural pesticides
- Cassava farm
- Plant pest resistant varieties like corn, cassava, rice, beans, tomato, yam, sweet potato, millet and groundnut, etc.

## How to Manage Awa Animals

- Improve animal housing;
- Feed animals well;
- Manage waste products and use as manure.











*Artificial fish pond*

## Climate-Smart Village/Farm

### CLIMATE SMART VILLAGE/FARM










| Weather Smart  | Water Smart  | Carbon Smart   | Nitrogen Smart  | Energy Smart   | Knowledge Smart   |
|--|--|--|---|--|---|
| <ul style="list-style-type: none"> <li>• Seasonal weather forecast</li> <li>• ICT based agro-advisories</li> <li>• Index based insurance</li> <li>• Climate analogues</li> </ul> | <ul style="list-style-type: none"> <li>• Aquifer recharge</li> <li>• Rain water harvesting</li> <li>• Community management of water</li> <li>• Laser leveling</li> <li>• On-farm water management</li> </ul> | <ul style="list-style-type: none"> <li>• Agroforestry</li> <li>• Conservation tillage</li> <li>• Land use systems</li> <li>• Livestock management</li> </ul> | <ul style="list-style-type: none"> <li>• Site specific nutrient management</li> <li>• Precision fertilizers</li> <li>• Cash cropping and legumes</li> </ul> | <ul style="list-style-type: none"> <li>• Biofuels</li> <li>• Fuel efficient engines</li> <li>• Residue management</li> <li>• Minimum tillage</li> <li>• Solar solutions for agriculture</li> </ul> | <ul style="list-style-type: none"> <li>• Farmer-farmer learning</li> <li>• Farmer networks on adaptation</li> <li>• Seed and fodder banks</li> <li>• Market info</li> <li>• Off-farm risk management</li> <li>• Kitchen garden</li> </ul> |

The climate-smart village/farm model came was created by the CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS) and partners  
<https://shorturl.at/jKSkv>

## Method We Fit Use Do Climate Smart Agriculture

### CLIMATE-SMART AGRICULTURE (CSA) TECHNIQUES AND SOLUTIONS

|  |  |   |   |
|--|--|---|---|
| <p><b>Water Management</b></p>  <p>Practise rainwater harvesting and efficient irrigation</p>   | <p><b>Soil Management</b></p>  <p>Compost organic wastes, precision fertigation and plant leguminous plants</p> | <p><b>Livestock Management</b></p>  <p>Improve animal health, grazing management and fodder farming</p> | <p><b>Waste Management</b></p>  <p>Use discarded foods to produce oils, animal feeds and fertilizers</p>         |
| <p><b>Agroforestry</b></p>  <p>Plant fruit forests, fodder crops and commercial trees</p>  | <p><b>Clean Energy</b></p>  <p>Adopt clean energy sources such as wind and solar</p>                           | <p><b>Aquaculture</b></p>  <p>Practise intensive fish farming for better income and food security</p>  | <p><b>Resilient Seeds</b></p>  <p>Plant fast growing seed varieties with greater heat and drought tolerance</p> |
| <p><b>Decision Making Tools</b></p>  <p>Access accurate and timely weather/rainfall forecasts to develop cropping and grazing calendars</p> |  |   |   |

#### *Climate Smart Techniques*

# Communal Conflict Management



Communal conflict management na di way people fit settle wahala wey dey happen between different groups for community. E dey involve different strategies wey fit help reduce tension, promote peace, and make sure say people fit live together well well.

## Strategies for Communal Conflict Management

- **Dialogue and Mediation:** Make people wey dey fight sit down, talk, and listen to each other. Mediators fit help dem find common ground.
- **Conflict Resolution Committees:** create committees wey go handle issues wen dem rise. Dem go bring people together, find solution wey go benefit everybody.
- **Peace building and Reconciliation:** Encourage people to forgive each other and work towards peace. Dis one fit involve traditional leaders, religious leaders, and community elders.
- **Educational and Awareness:** teach people about tolerance, respect, and understanding of each other's culture and beliefs.
- **Law Enforcement and Justice:** Make sure say law enforcement agencies dey fair and transparent. Dem go fit intervene to prevent violence and bring justice if person break law.
- **Community Development Projects:** Start projects wey go bring people together to work and achieve common goals. E fit be farming, building schools, or fixing gutter, roads or building embankment, etc.
- **Early Warning Systems:** create systems wey go alert community if trouble dey come. Dis one fit help people prepare and prevent violence.

## How do you handle Community Conflict?

- Identify wetin be the sources of conflict;
- Listen actively and try dey show concern;
- Identify the common thing wey bind the community or members together;
- No throw or shift blame;
- Involve other community stakeholders or third party for the matter;
- Learn and grow from the experience – no dey dwell for wetin don happen pass.

# Climate Change – A Factor Militating against Community Development

## Wetin be Community Development?

Community development na di process wey involve make community better for people wey dey live inside am. Community development na team work wey involve everybody for di community, like people wey live there, government and organizations wey wan help. E dey aim to make community strong, fit support everybody wey dey live inside, and make life better for everybody.

## Why Community Development dey Important?

Community development dey important because:

- E dey improve people quality of life;
- E dey give power to our people ;
- E dey grow our economy, e dey bring everybody together;
- E dey promote sustainable development;
- E deymake community strong to face challenges.

## How Climate Change dey use affect our Communities?

Climate change dey affect us well well. D reason because:

- E dey cause sea level rise wey fit flood communities. Floods dey bring sickness like chlorea, malaria.
- E dey worsen wetland erosion. Dis dey affect fishing and faming wey be main thing people for the di area dey use take care of themselves.

## Problems Climate Change dey Cause for Community Development

Climate change dey cause serious problem for development of coastal communities because:

**Sea Level Rise:** Di coastal communities area dey low and as sea levels rise, e fit lead to flooding, erosion, and even displacement of people and buildings. E dey damage infrastructure and make people lose their homes and farms.

**Extreme Weather:** Climate change dey cause more serious weather like strong winds, heavy rain wey fit damage houses and farms, and even disrupt everyday life for people.

**Farming Wahala:** Agriculture na big business for coastal communities in West Africa, but climate change dey affect how well crops dey grow. E fit reduce rainfall or make weather too hot, so crops no fit grow well. Dis one fit cause food scarcity and make life hard for people wey dey depend on farming.

**Health Matter:** Climate change dey bring sickness like waterborne diseases during floods or eat sickness during hot weather. E dey make people sick and put pressure on health centres, hospitals and clinics wey dey try help.



**Loss of Nature:** Coastal communities of West Africa get plenty natural life and climate change don destroy wetlands and fish habitat. E dey affect fish wey people catch and make am hard to make money from fishing and other natural resources.

**Money matter:** Climate change fit cost plenty money for communities' wey dey depend on fishing and farming. E dey spoil businesses and make life hard for our people wey dey try earn money.

### **How to Solve this Wahala?**

To solve this problem, dem need to find ways to adapt to climate change and protect di environment, dem fit:

1. Improve buildings to withstand flooding;
2. Teach people how to farm better;
3. Make sure our hospitals dey ready for health problems wey fit happen because of climate change.

### **CASE STUDY: Below Dey Explain How Climate Change Dey Affect Community Development.**

The 2020 and 2022 floods wey happun for Rivers, Bayelsa, and Delta states for Nigeria bin serious sotay e affect plenty pipo and cause katakata for di area.

Di flood start because of heavy rain wey make rivers like Niger and Benue overflow. Dis na why di place wey dey low, like Rivers, Bayelsa and Delta states suffer pass as water flood plenty communities like Port Harcourt, Yenagoa, Ogbia) and Warri, farms, and towns.

Di flood make many pipo run comot dia house and find where dem go stay. E spoil houses and even destroy some, make pipo wey dey live for places like Bonny Island, Brass, and Patani suffer well well.

Roads, bridges, schools, hospitals, and light network all suffer for di flood. E block road and make am hard for pipo to move around and get help for places like Ahoada, Bomadi, and Oguta. E disrupt normal life and make am hard for pipo to get essential tins wey dem need. Farming wey be di main work pipo for dis area, suffer sotay crops and animals spoil finish. Dis one bring hunger and make money no dey flow for di area. Even business people too suffer as dem lose shops and tins wey dem dey sell for places like Ughelli, Degema, and Isoko. Di flood bring sickness like cholera and oda waterborne disease because of dirty water for places like Abua, Ahoada, Ogbia LGA (Otuabual II), Southern Ijaw LGA (Olugbobiri), Patani, Burutu, and Bomadi. E make pipo live for place wey no dey clean and no get medicine to treat sickness.

## **Pictures of the 2022 Flood in Rivers, Bayelsa and Delta States**



*Flooding for Akinima, Rivers state*



*Houses wey flood affect for Rivers State*



*House flooded for Bomadi*



*Flooding for inside Bayelsa Community*



*Flood victims dy arrange their belongings for river bank*



*Houses flooded for Bayelsa*



## Practical Management of Any Conflict That Has Risen

1. When conflict don rise, e dey important to manage am well so peace fit return. Here be practical steps to manage any conflict:
2. **Understand di Conflict:** First, we need to understand wetin cause di conflict. Dis one go involve talking to di people wey dey involved to hear dia side of di story. E good to listen well and no take side.
3. **Call Meeting:** Arrange meeting with all di people wey dey involved for di conflict. Make sure say dii meeting dey for neutral ground wey everybody go feel comfortable.
4. **Set Ground Rules:** Before di meeting start, set some ground rules. For example, make sure say everybody go get chance to talk without interruption, and make sure say dem go respect each other.
5. **Identify Common Goals:** Find out wetin all di parties want and see wetin dem fit agree on. Dis go help to build some level of trust and cooperation.
6. **Discuss di Issues:** Allow each person totalk about how di conflict take affect dem and wetin dem feel. Encourage dem to talk about di issues and no attack each other personally.
7. **Find Solutions Together:** Work together to find solution wey go benefit everybody. Make suresay di solution dey realistic and dem fit achieve am. Sometimes, e go involve compromise from all di parties involved.
8. **Make Agreement:** After una don agree on wetin to do, put am down for writing. Make everybody wey dey involved sign am. Dis one go make sure say everybody dey committed to wetin dem agree on.
9. **Follow Up:** After una don reach agreement, follow up to make sure say everybody dey do wetin dem agree. Dis go help prevent di conflict from happening again.

### **CASE STUDY: See How This Community for Bayelsa Use Settle Land Dispute**

For Olugbobiri community in Southern Ijaw LGA of Bayelsa state, pipo dey fight over land matter wey dey want use for farming. Here na how di community leader and CDC manage am.

Di community leader and CDC chairman go talk to all di people wey dey involved to understand wetin cause di land wahala. After Di leader come understand di problem, he ask the CDC to go arrange meeting for community hall. For di meeting, he set rules like “no interrupt when person dey talk” and “no insult each other”.

Mr. Ebi and Mrs. Grace(di persons involved in di dispute) want make use of di land for farming. Each person was allowed to talk about how di matter affect dem. Di land na Mr Ebi and Mrs Grace grandpapa land wey he leave for them. Mr. Ebi say as Mrs. Grace don marry she no suppose use dat land again but Mrs. Grace no gree because say na her grandpapa give the two of dem. And Mr. Oyinkuro (Mr. Ebi and Mrs. Grace grandpapa) don die.

Di leader of the Community, Mr. Moses ask dem if dem go fit divide di land into two, or make dem use am together and share di produce. Mrs. Grace agree say she want make dem use am together as dem be family. While, Mr. Ebi say make dem divide am, make everybody take he part.

So the community leader share the land into two make everybody farm for he own land to avoid wahala again. He ask dem to write agreement and everybody go sign. Di CDC chairman, Mr. Mike go dey dem check from time to time to make sure say di agreement still dey work. Na so di community use solve d matter over di land use.

## Community Discussion Sessions



**Climate Change Training for Community Stakeholders (CSNs) in Iko, Ibeno, Ogulagha and Ugorodo Communities by Academic Associates PeaceWorks (AAPW) Team**



*Climate Change Training in Ogulagha*



*Climate Change Training in Ugorodo*



*Climate Change Training in Iko*



*Climate Change Training in Ibeno*







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