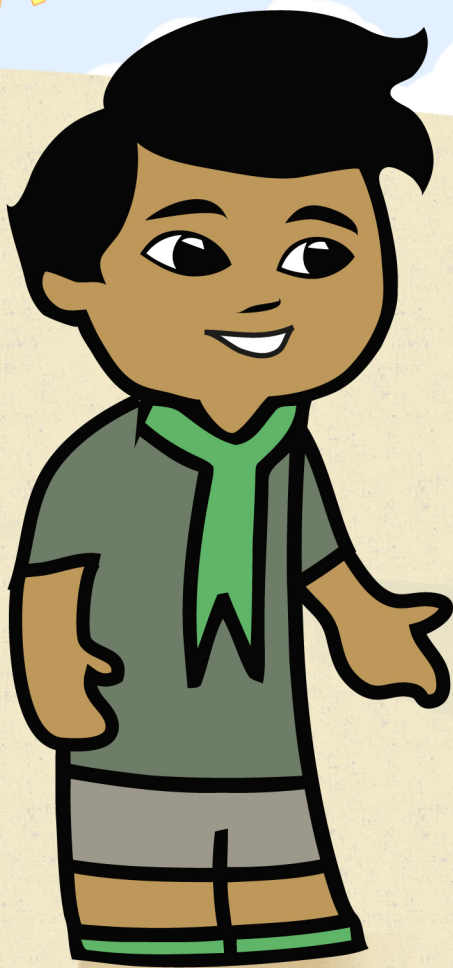




# ARA AND RON DISCOVER CLIMATE RESILIENCE

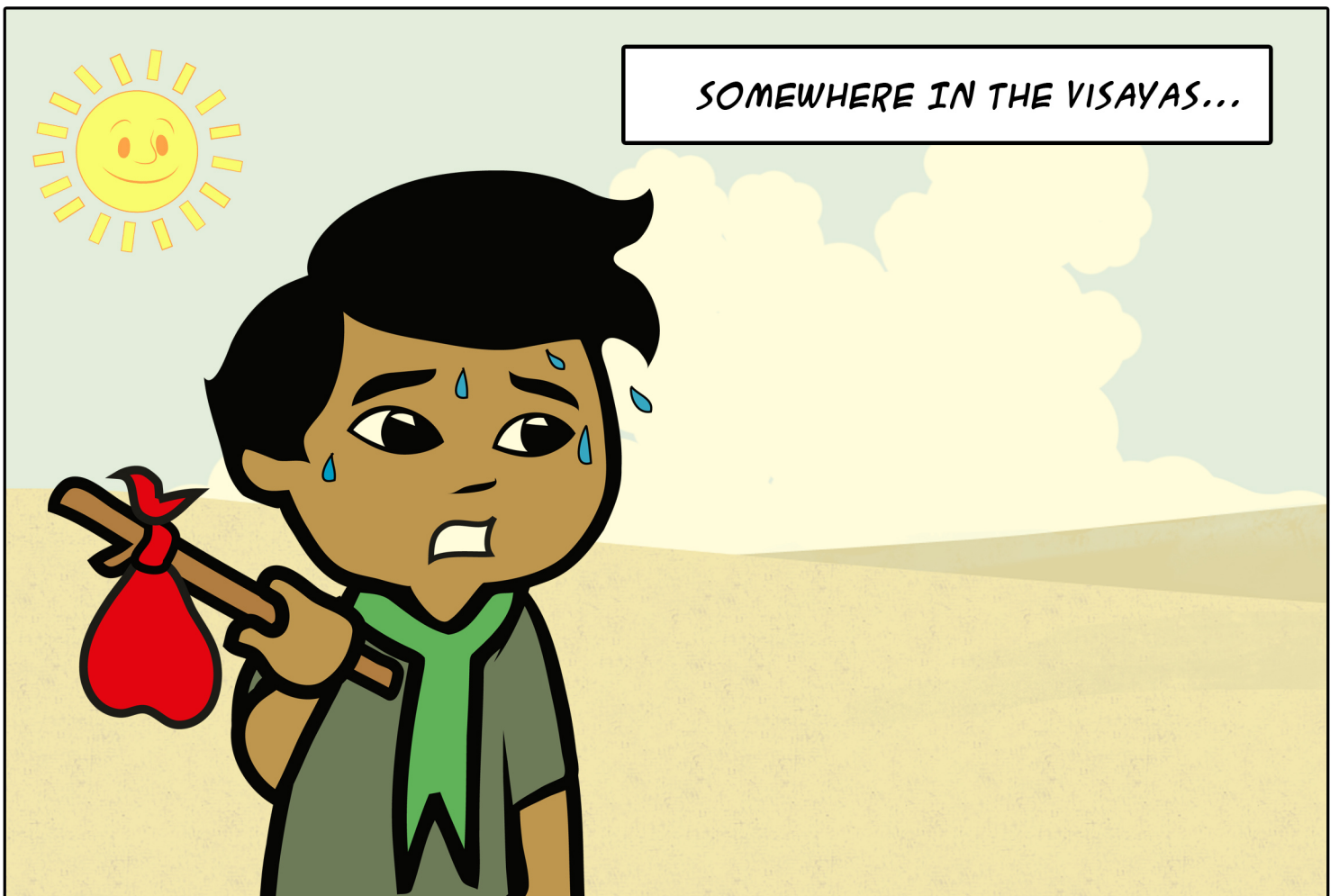
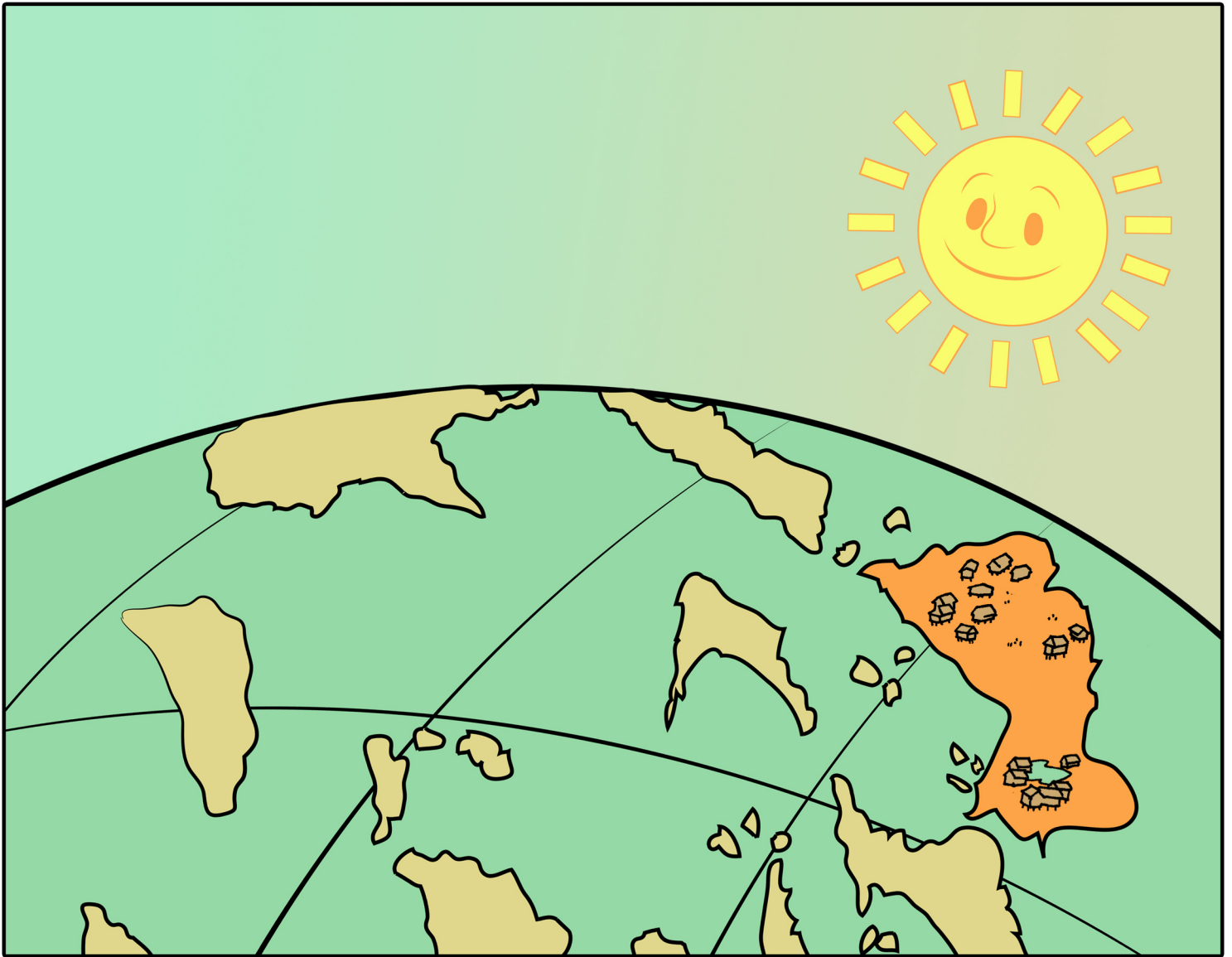


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SOMEWHERE IN THE VISAYAS...

RON AND ARA GO FOR A WALK.

HUH,  
IT'S SO  
HOT.

YES!  
I KNOW. LOOK  
HOW THE RICE  
FIELD HAS DRIED  
UP. WE MIGHT NOT  
HAVE ENOUGH  
FOOD THIS  
YEAR.

I DON'T  
UNDERSTAND  
WHAT'S GOING ON...  
IT'S JUST GETTING  
HOTTER AND  
HOTTER...

WELL,  
I'VE HEARD  
IT'S BECAUSE  
OF CLIMATE  
CHANGE.

SOME OF THE HEAT IS  
TRAPPED ON EARTH  
BECAUSE OF GREENHOUSE  
GASSES...

SUN RAYS  
HIT THE  
EARTH'S  
SURFACE...

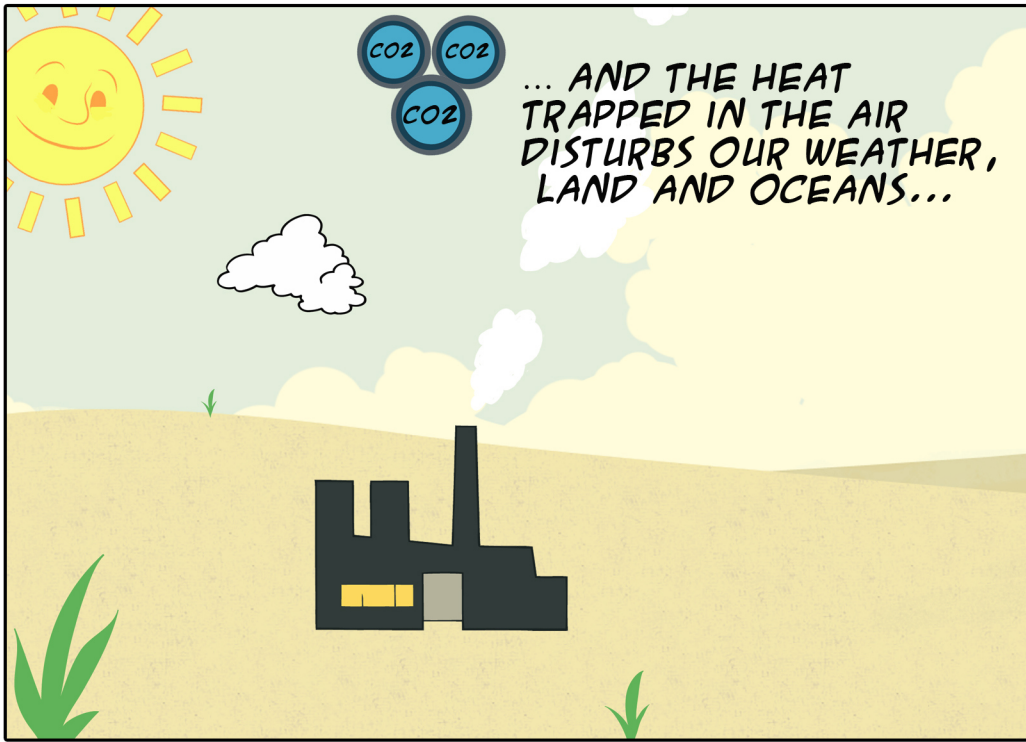
CO<sub>2</sub>

CO<sub>2</sub>

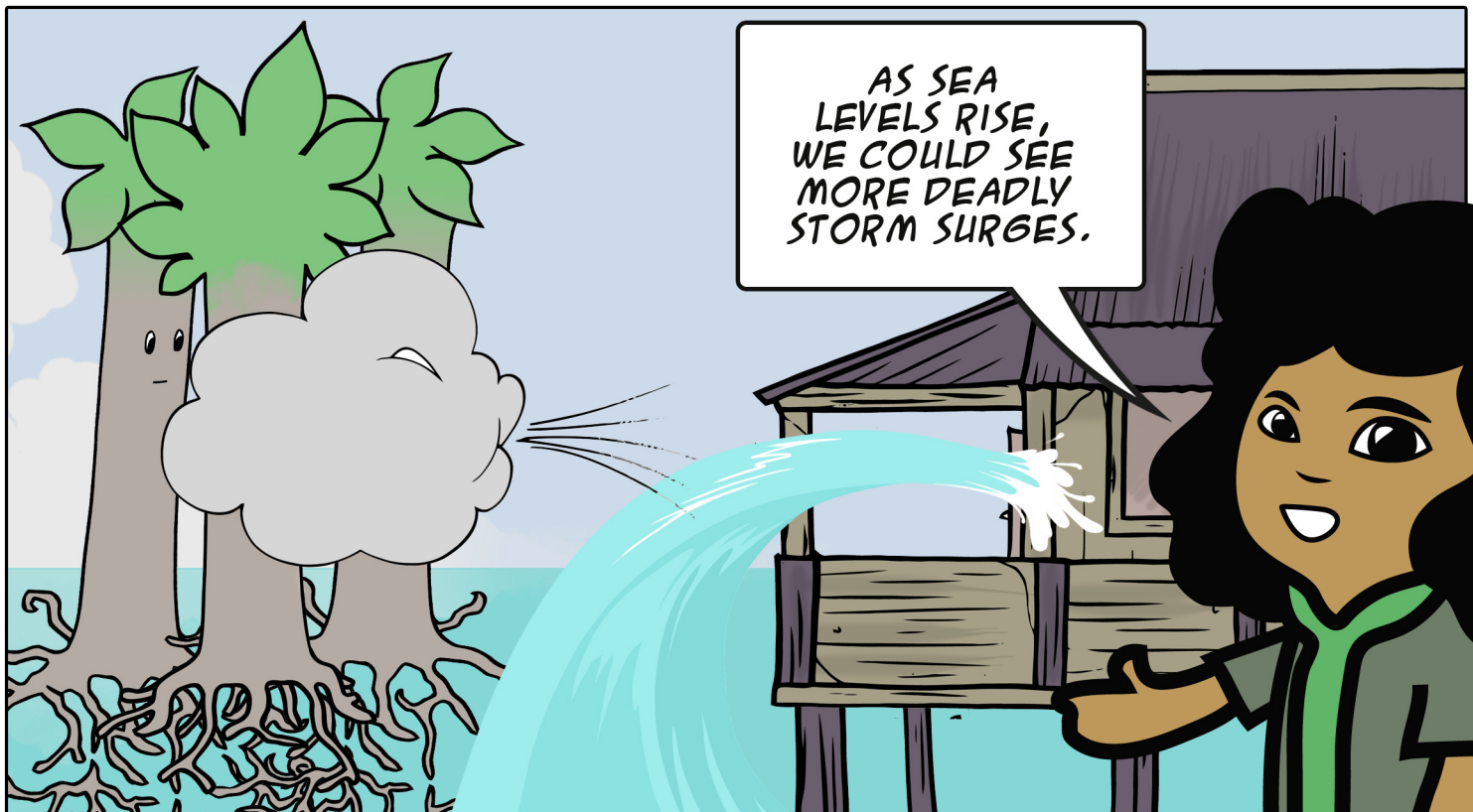
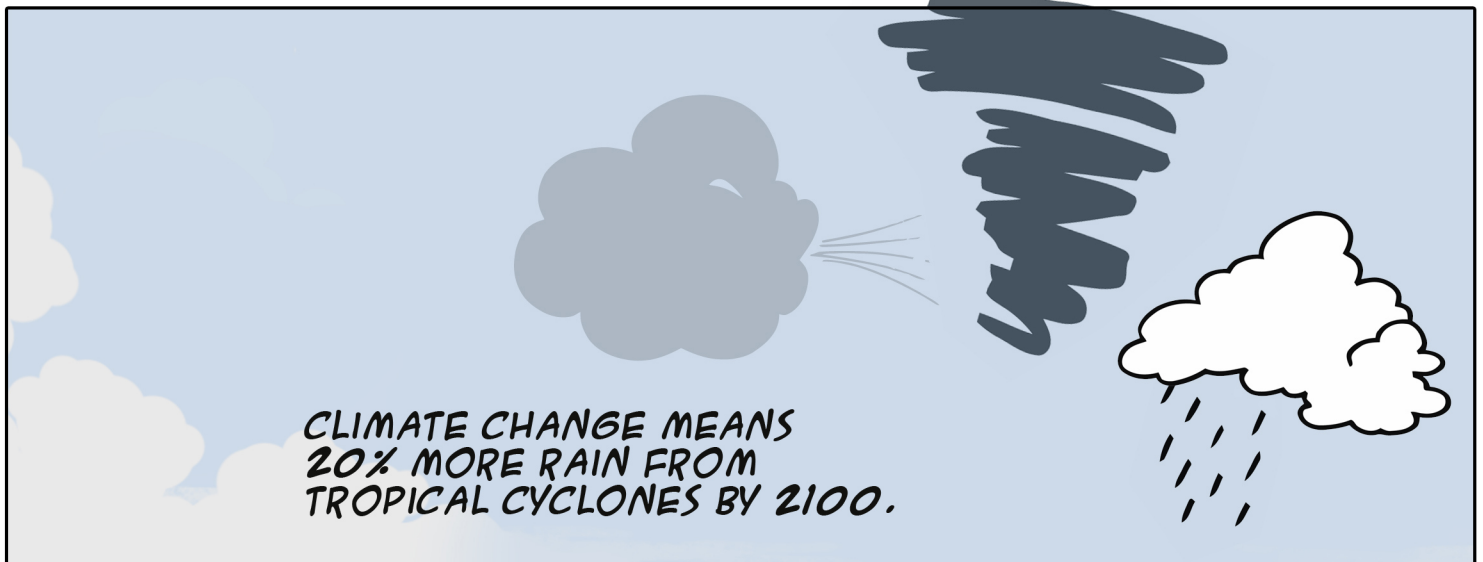
CO<sub>2</sub>

CO<sub>2</sub>  
EMISSIONS  
INTENSIFY  
THE NATURAL  
GREENHOUSE  
EFFECT.

...WHICH MANY FACTORIES  
USING FOSSIL FUELS PUMP UP  
INTO THE AIR...

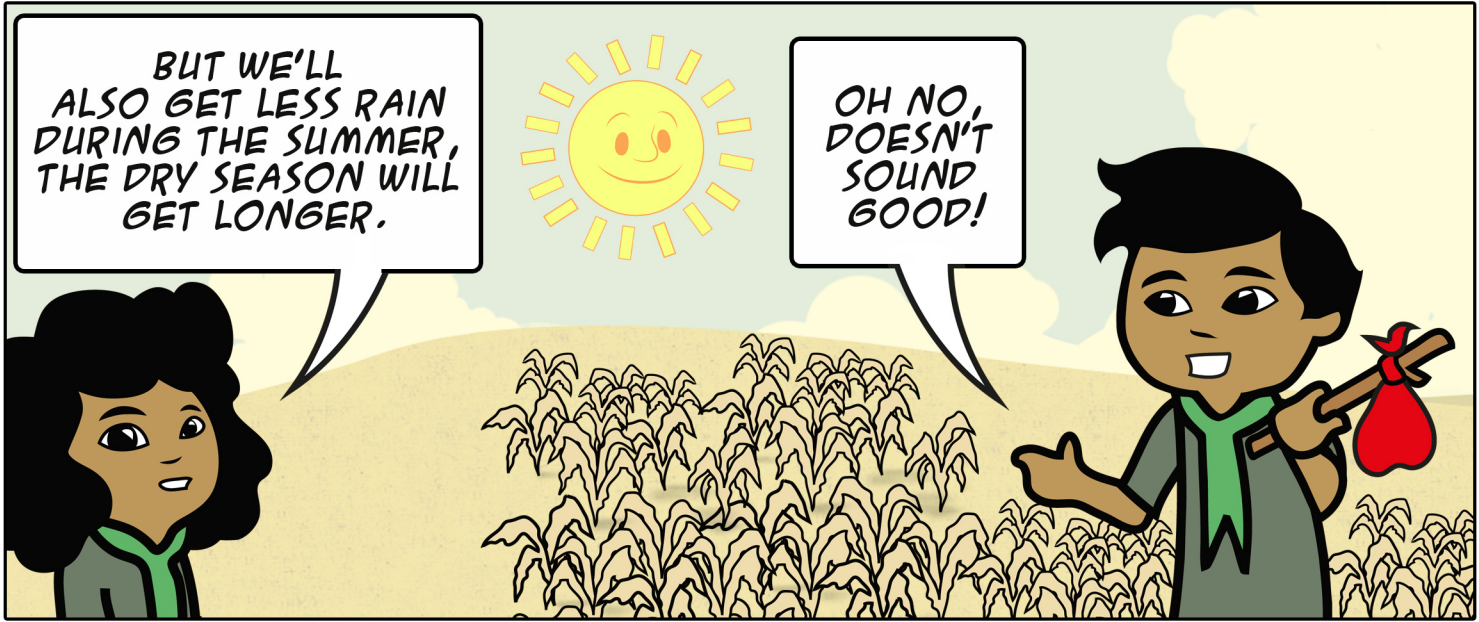


REMEMBER  
TYPHOON  
YOLANDA ?  
THAT'S WHAT  
CLIMATE  
CHANGE  
REALLY  
LOOKS LIKE.



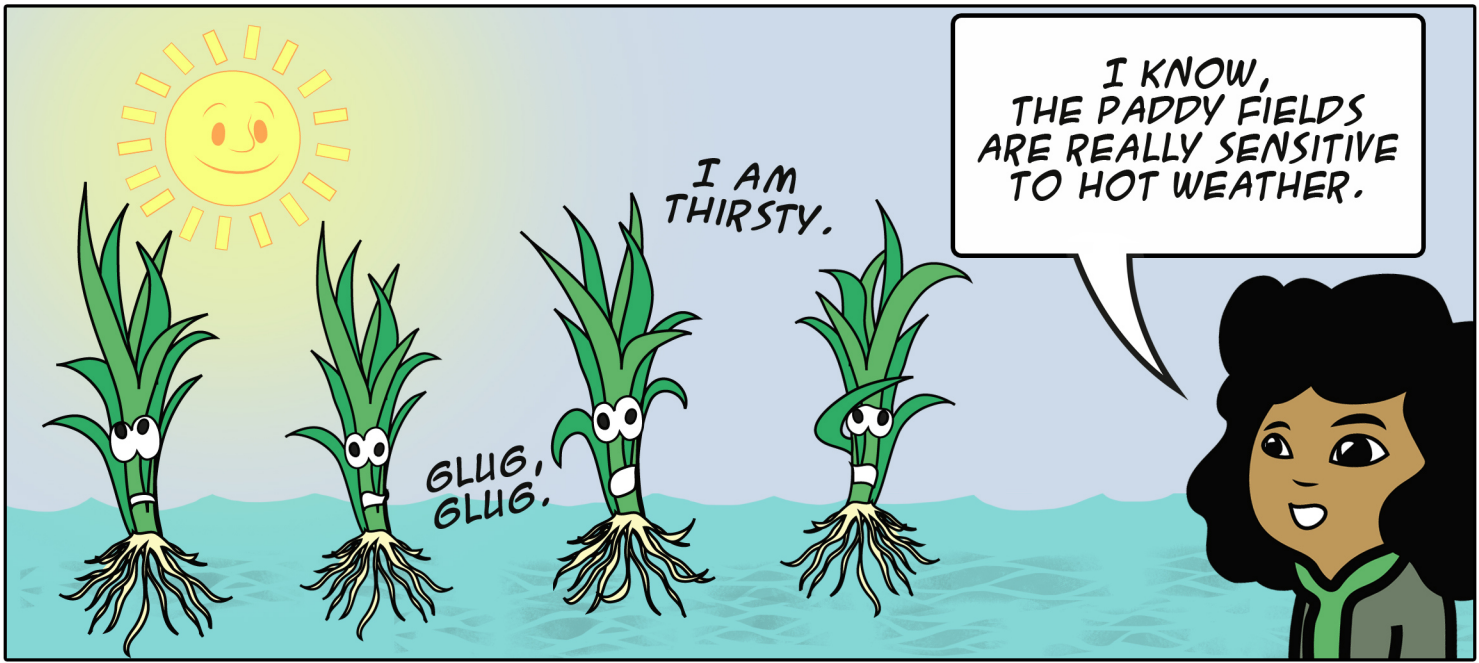
AS SEA  
LEVELS RISE,  
WE COULD SEE  
MORE DEADLY  
STORM SURGES.



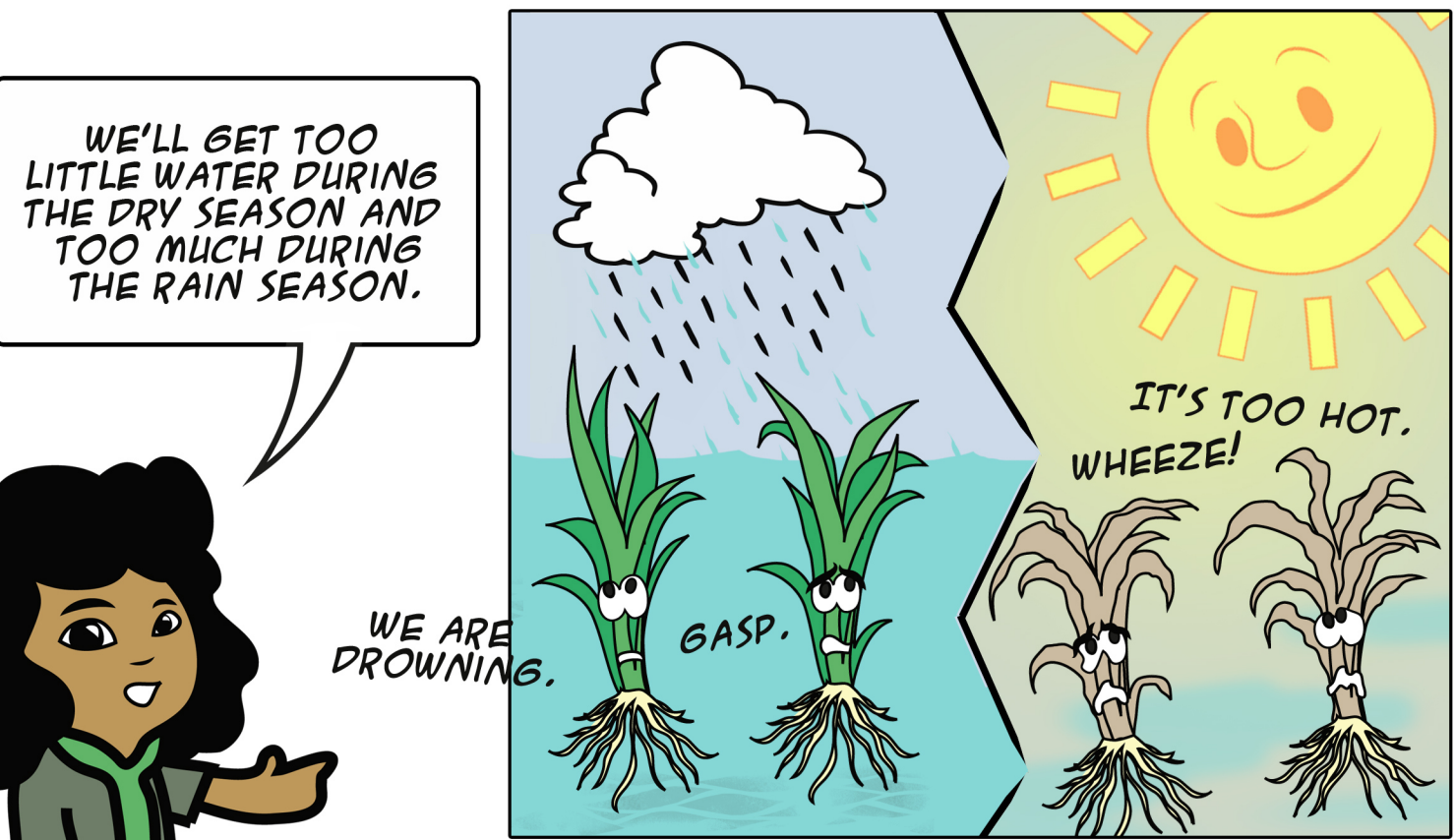


BUT WE'LL ALSO GET LESS RAIN DURING THE SUMMER, THE DRY SEASON WILL GET LONGER.

OH NO, DOESN'T SOUND GOOD!



I KNOW, THE PADDY FIELDS ARE REALLY SENSITIVE TO HOT WEATHER.

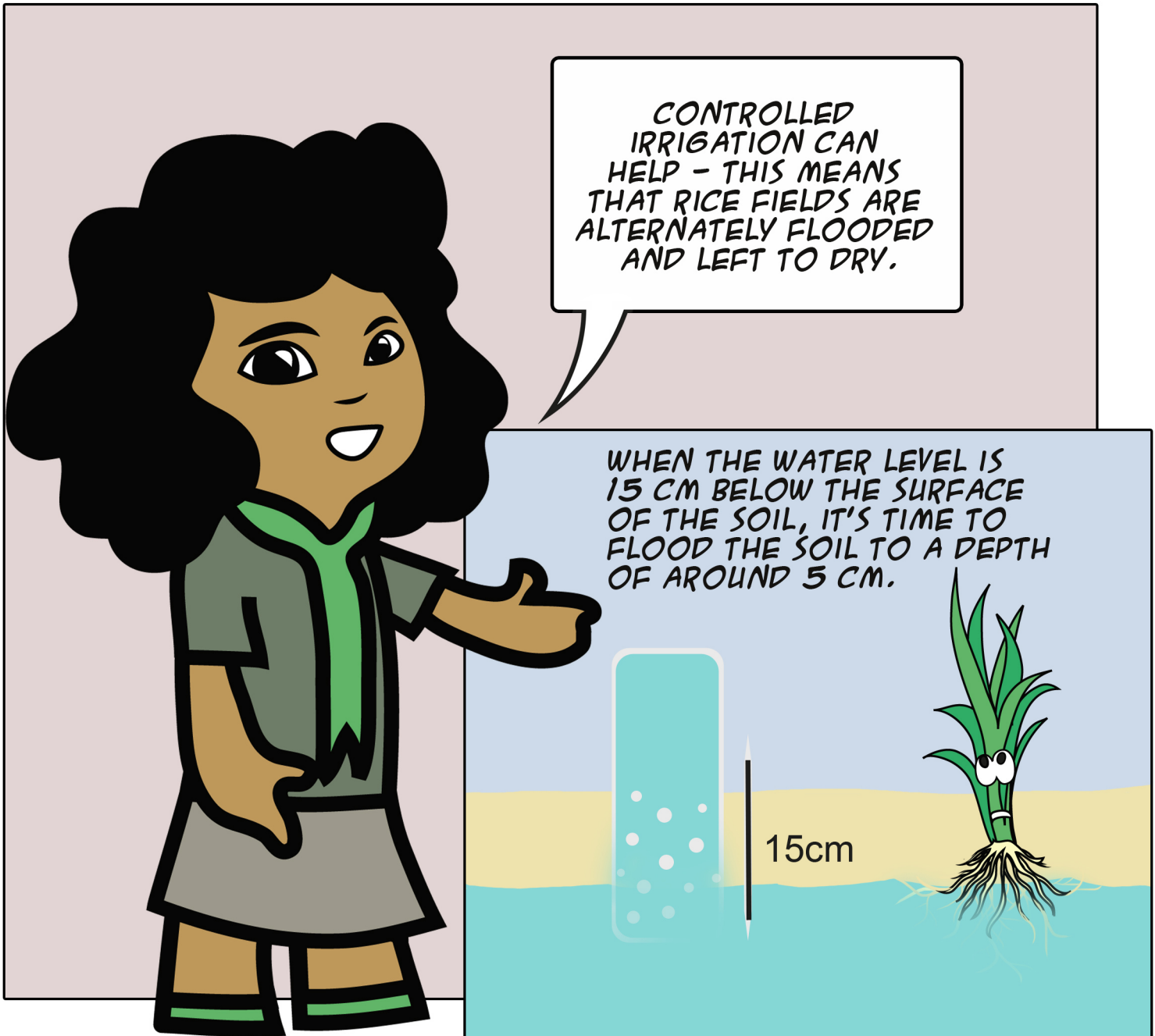


WE'LL GET TOO LITTLE WATER DURING THE DRY SEASON AND TOO MUCH DURING THE RAIN SEASON.

WE ARE DROWNING.

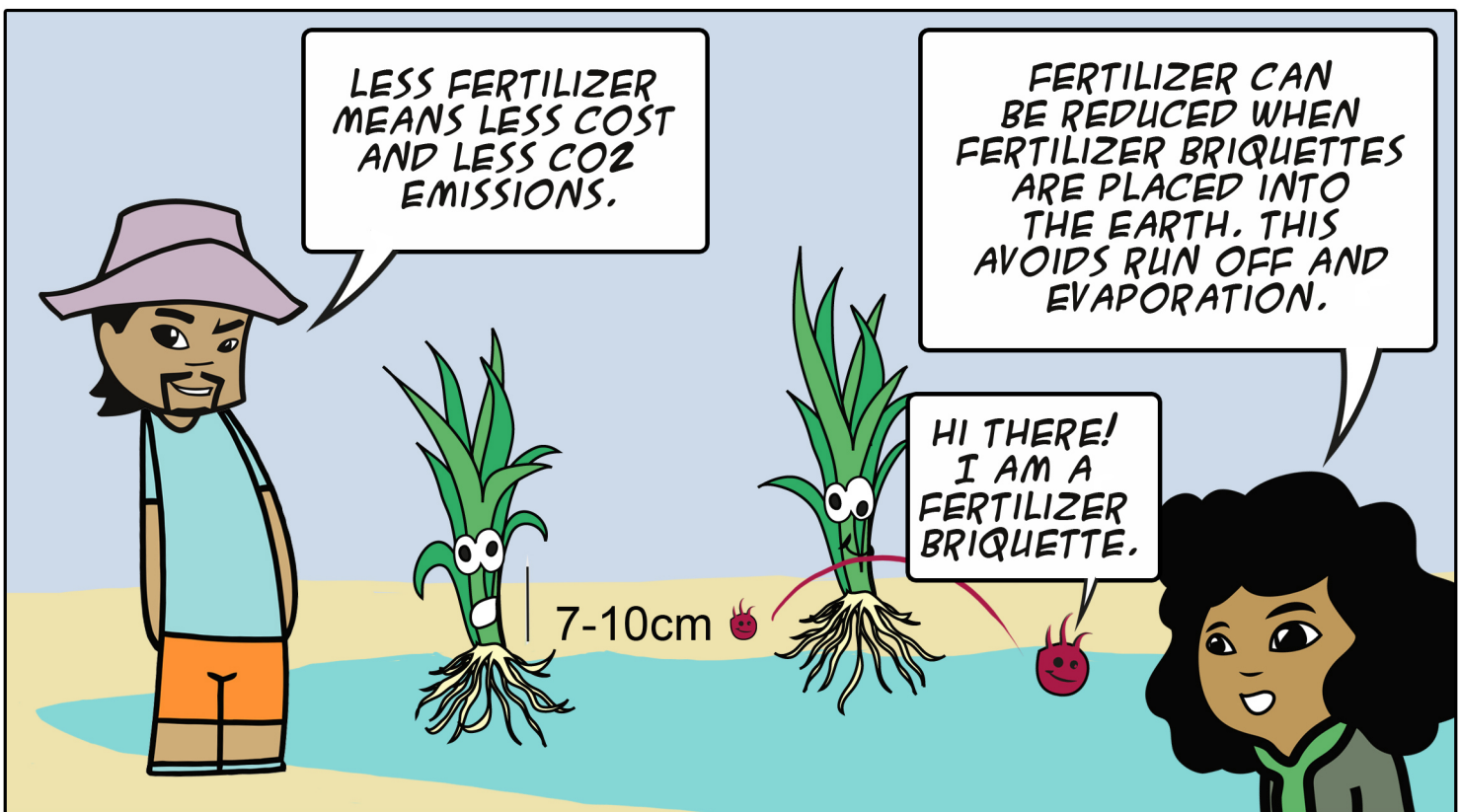
GASP.

IT'S TOO HOT, WHEEZE!



CONTROLLED IRRIGATION CAN HELP - THIS MEANS THAT RICE FIELDS ARE ALTERNATELY FLOODED AND LEFT TO DRY.

WHEN THE WATER LEVEL IS 15 CM BELOW THE SURFACE OF THE SOIL, IT'S TIME TO FLOOD THE SOIL TO A DEPTH OF AROUND 5 CM.

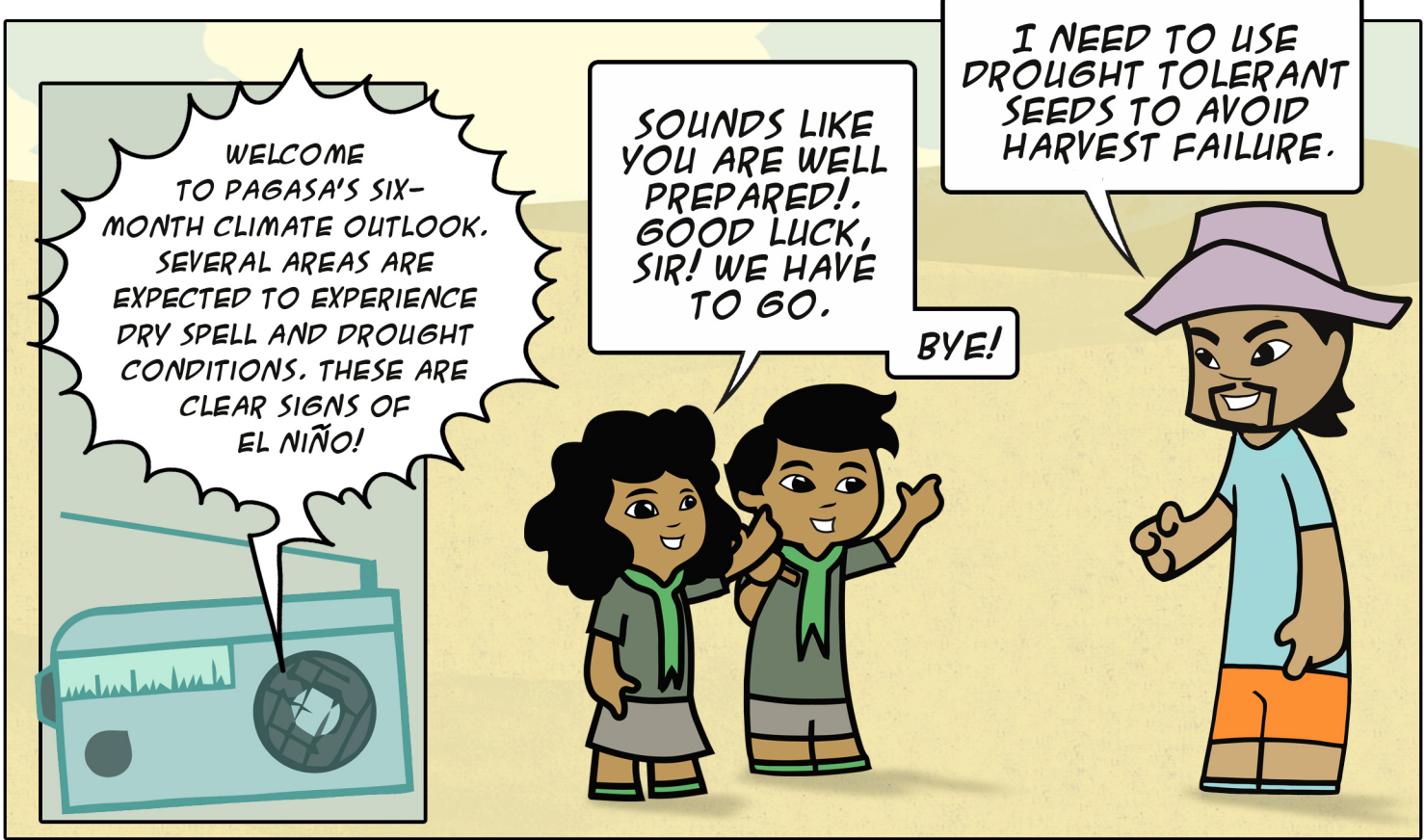


LESS FERTILIZER MEANS LESS COST AND LESS CO2 EMISSIONS.

FERTILIZER CAN BE REDUCED WHEN FERTILIZER BRIQUETTES ARE PLACED INTO THE EARTH. THIS AVOIDS RUN OFF AND EVAPORATION.

HI THERE! I AM A FERTILIZER BRIQUETTE.

7-10cm

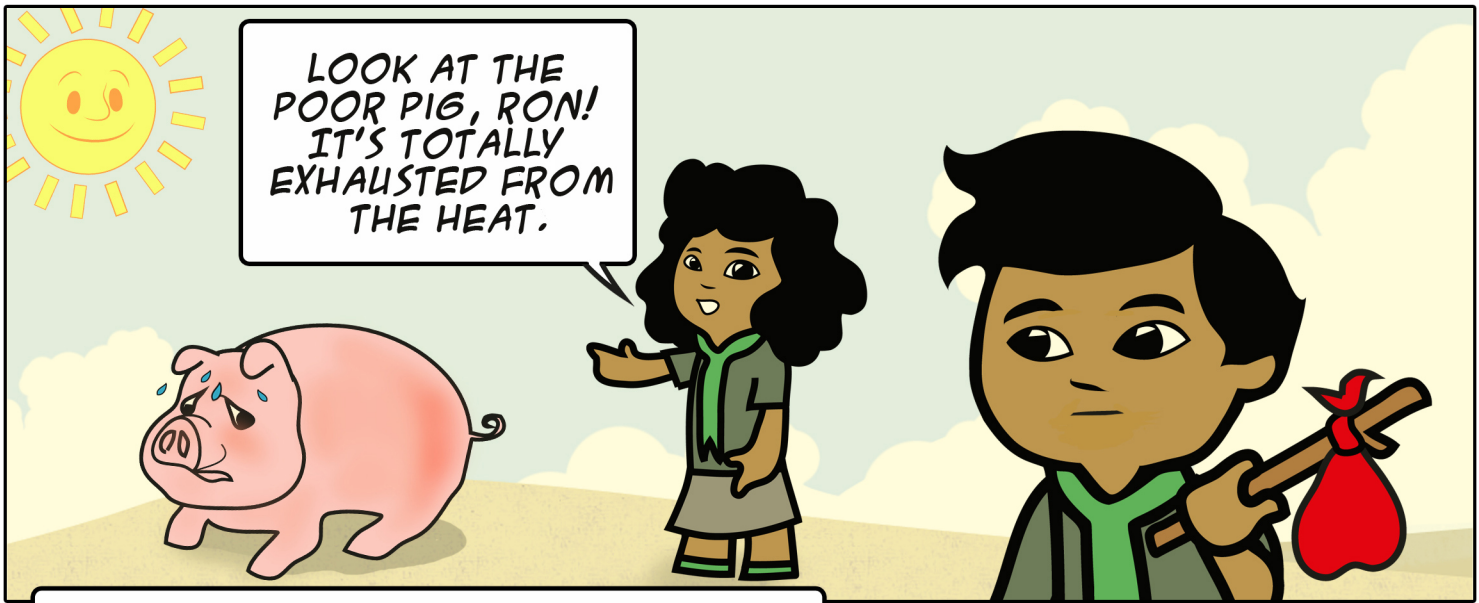


WELCOME TO PAGASA'S SIX-MONTH CLIMATE OUTLOOK. SEVERAL AREAS ARE EXPECTED TO EXPERIENCE DRY SPELL AND DROUGHT CONDITIONS. THESE ARE CLEAR SIGNS OF EL NIÑO!

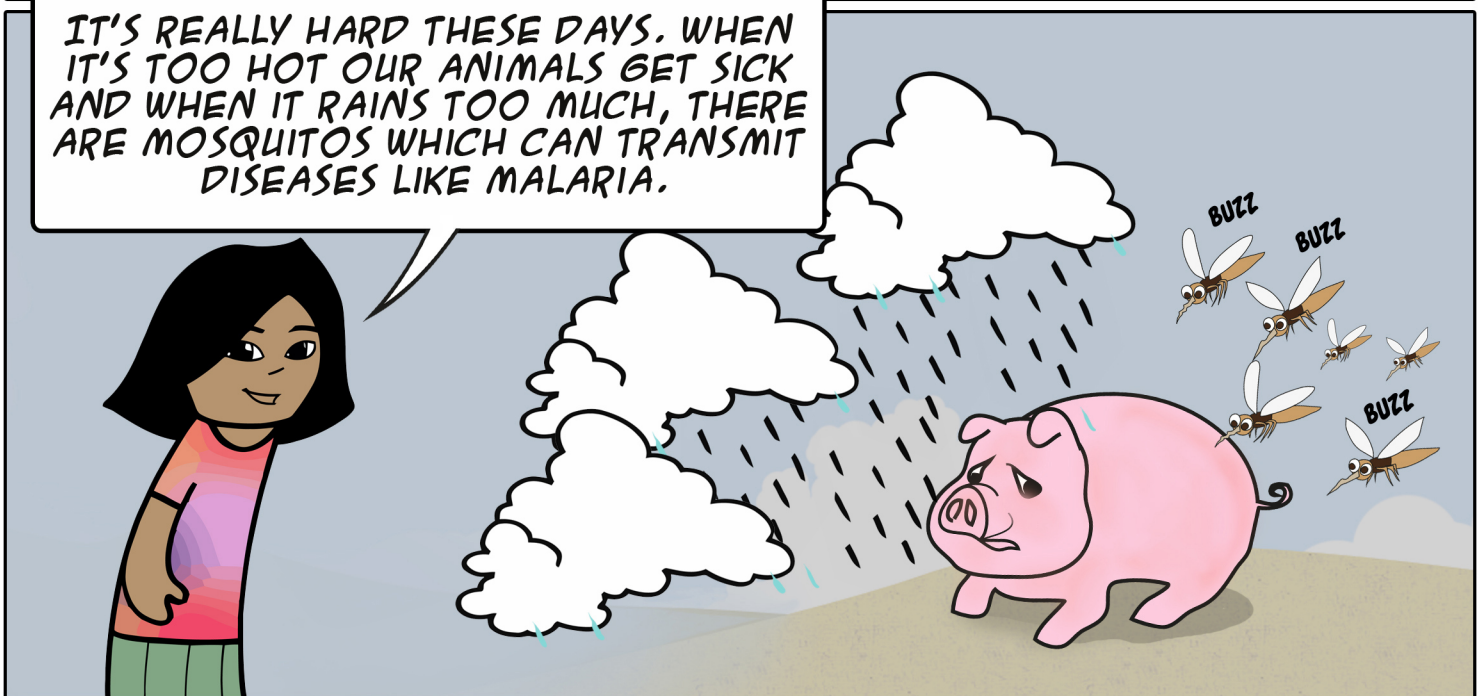
SOUNDS LIKE YOU ARE WELL PREPARED!. GOOD LUCK, SIR! WE HAVE TO GO.

I NEED TO USE DROUGHT TOLERANT SEEDS TO AVOID HARVEST FAILURE.

BYE!



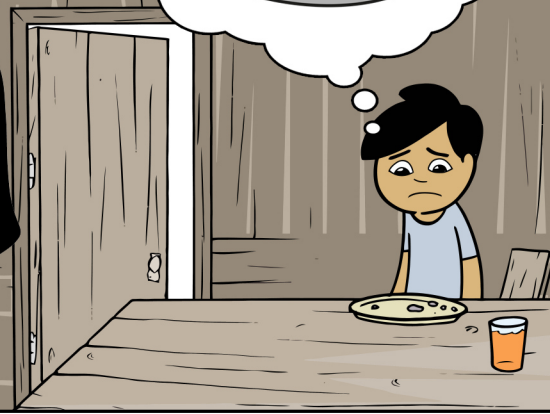
LOOK AT THE POOR PIG, RON! IT'S TOTALLY EXHAUSTED FROM THE HEAT.



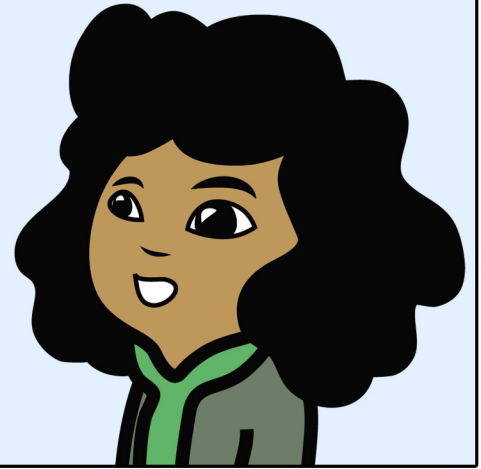
IT'S REALLY HARD THESE DAYS. WHEN IT'S TOO HOT OUR ANIMALS GET SICK AND WHEN IT RAINS TOO MUCH, THERE ARE MOSQUITOS WHICH CAN TRANSMIT DISEASES LIKE MALARIA.

BUZZ BUZZ BUZZ BUZZ

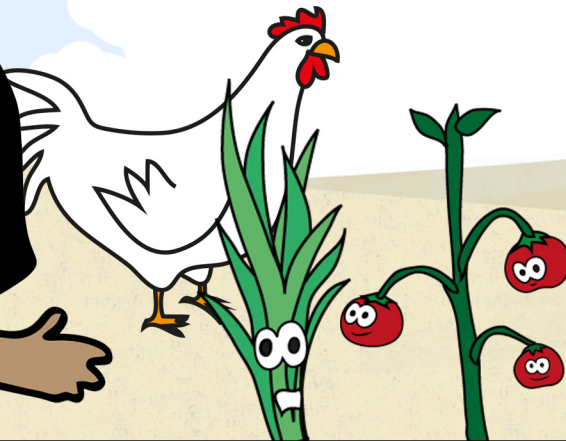
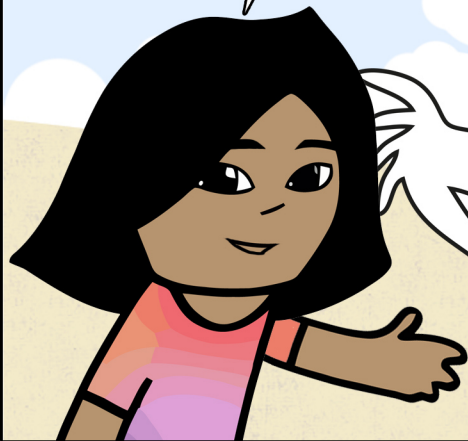
IF OUR PIGS ARE NOT HEALTHY WE CANNOT SELL THEM AND DO NOT HAVE ENOUGH MONEY FOR OUR FAMILIES.



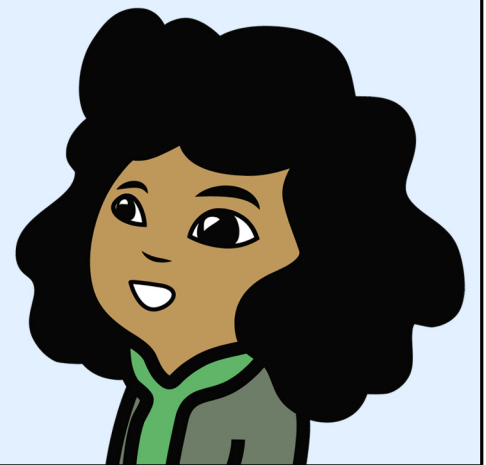
WHAT CAN YOU DO ABOUT THIS ?



WE NEED TO HAVE DIFFERENT ANIMALS, NOT JUST PIGS. RAISING CHICKEN AND GROWING LOCAL VEGETABLES HELPS. WE SHOULD ALSO SWITCH BACK TO NATIVE ANIMAL TYPES, THEY ARE MORE ROBUST.



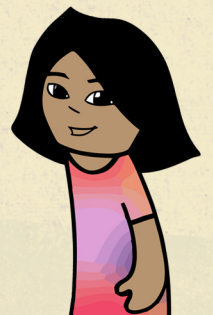
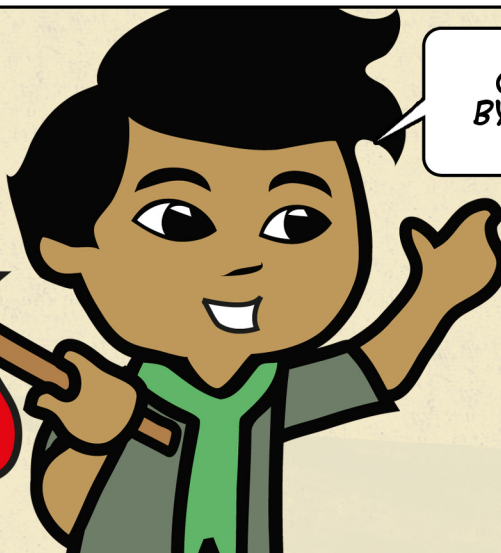
THAT MAKES SENSE! IF AN ANIMAL GETS SICK YOU STILL HAVE DIFFERENT INCOME SOURCES!



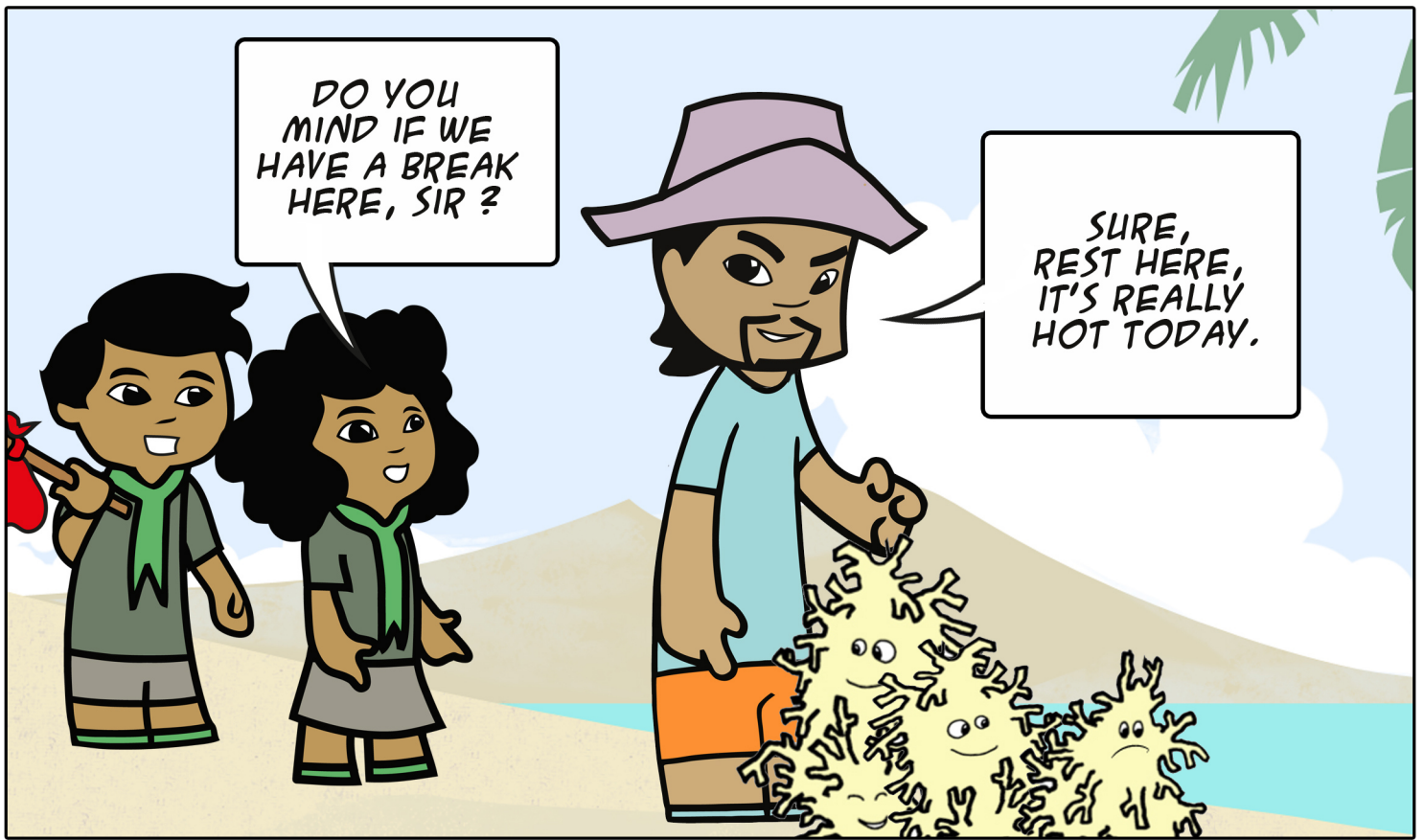
HEY RON! LET'S GO TO THE BEACH!



OK, ARA! BYE MA'AM!

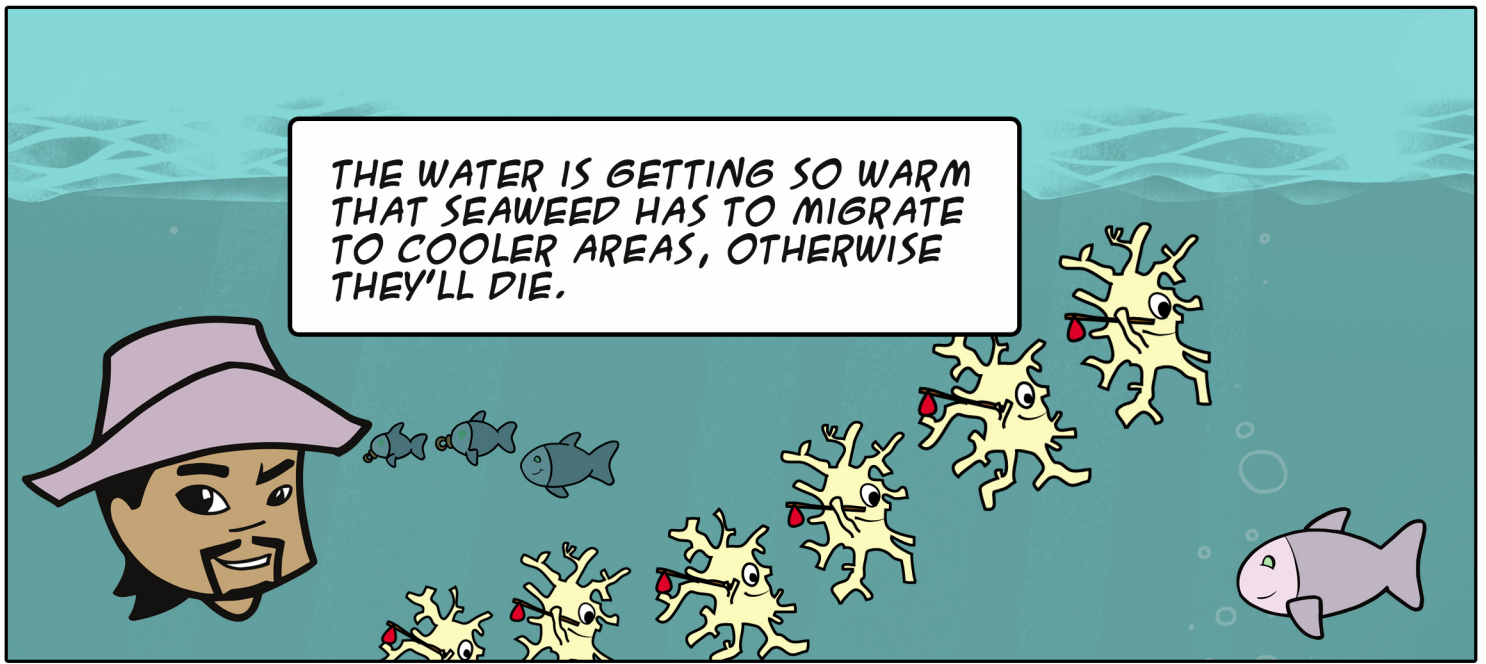




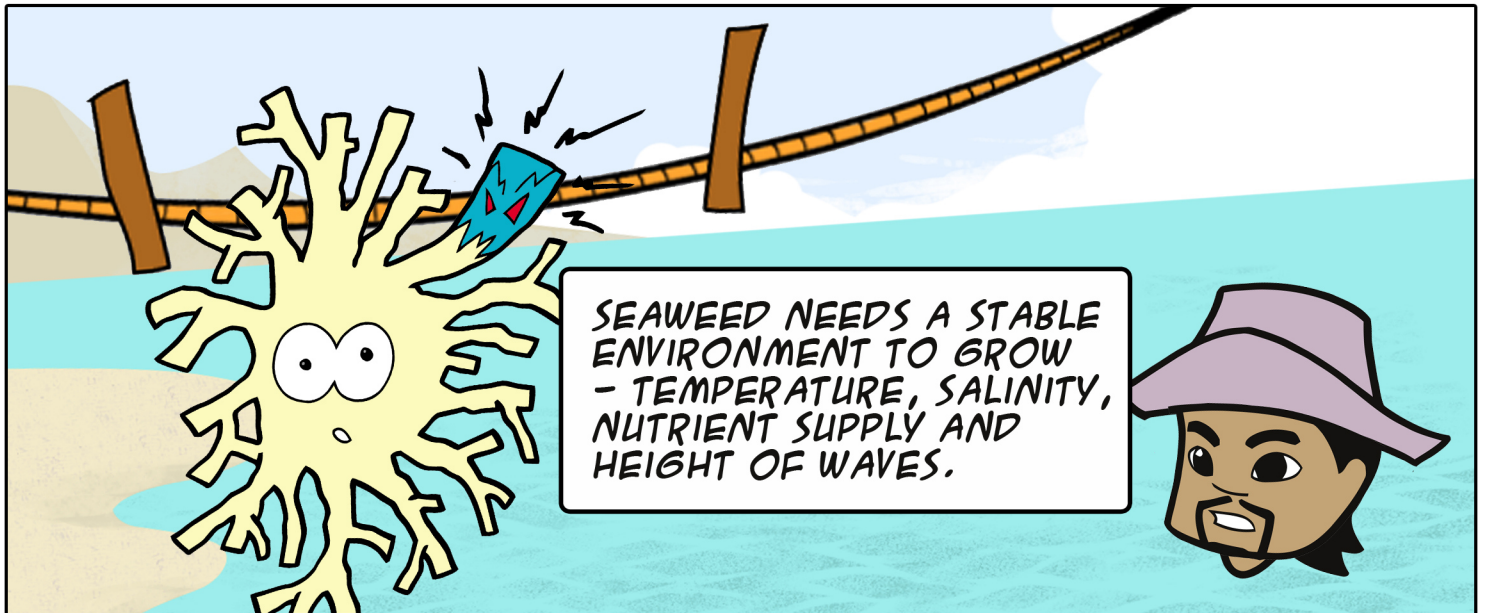


DO YOU MIND IF WE HAVE A BREAK HERE, SIR ?

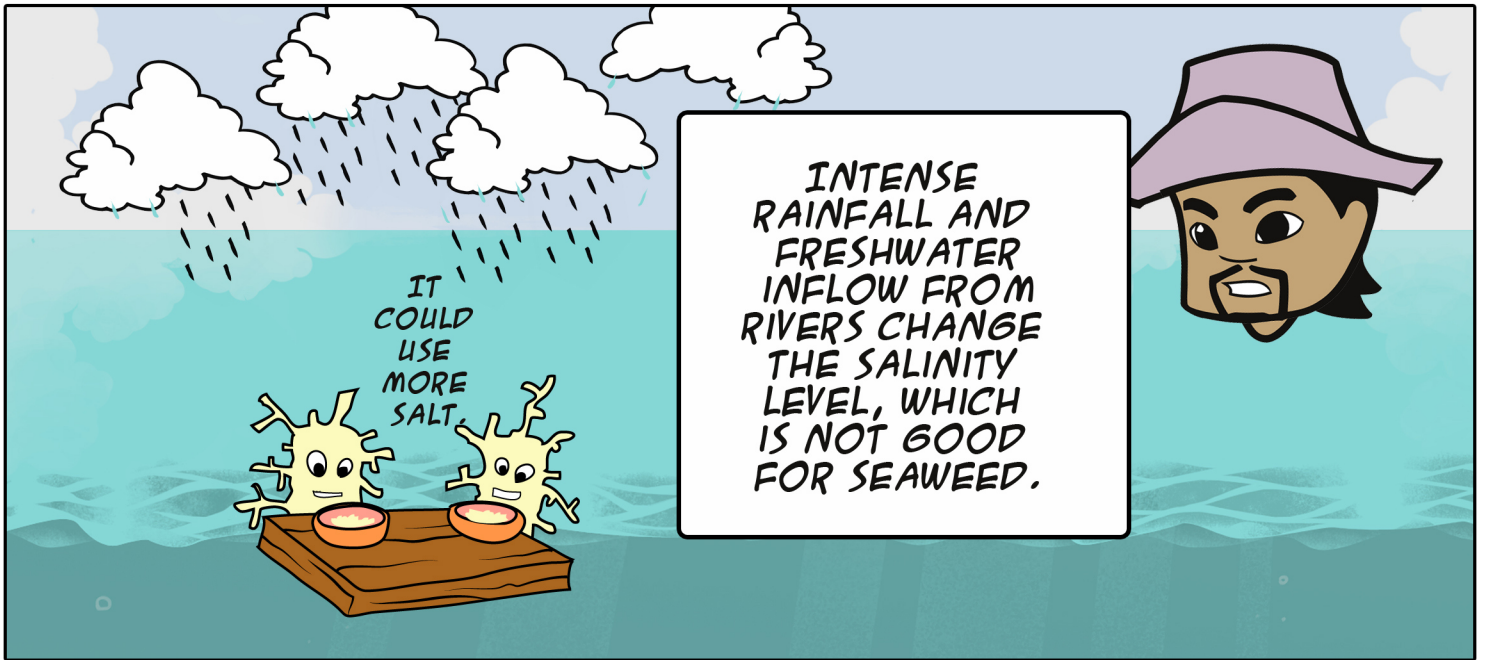
SURE, REST HERE, IT'S REALLY HOT TODAY.



THE WATER IS GETTING SO WARM THAT SEAWEED HAS TO MIGRATE TO COOLER AREAS, OTHERWISE THEY'LL DIE.

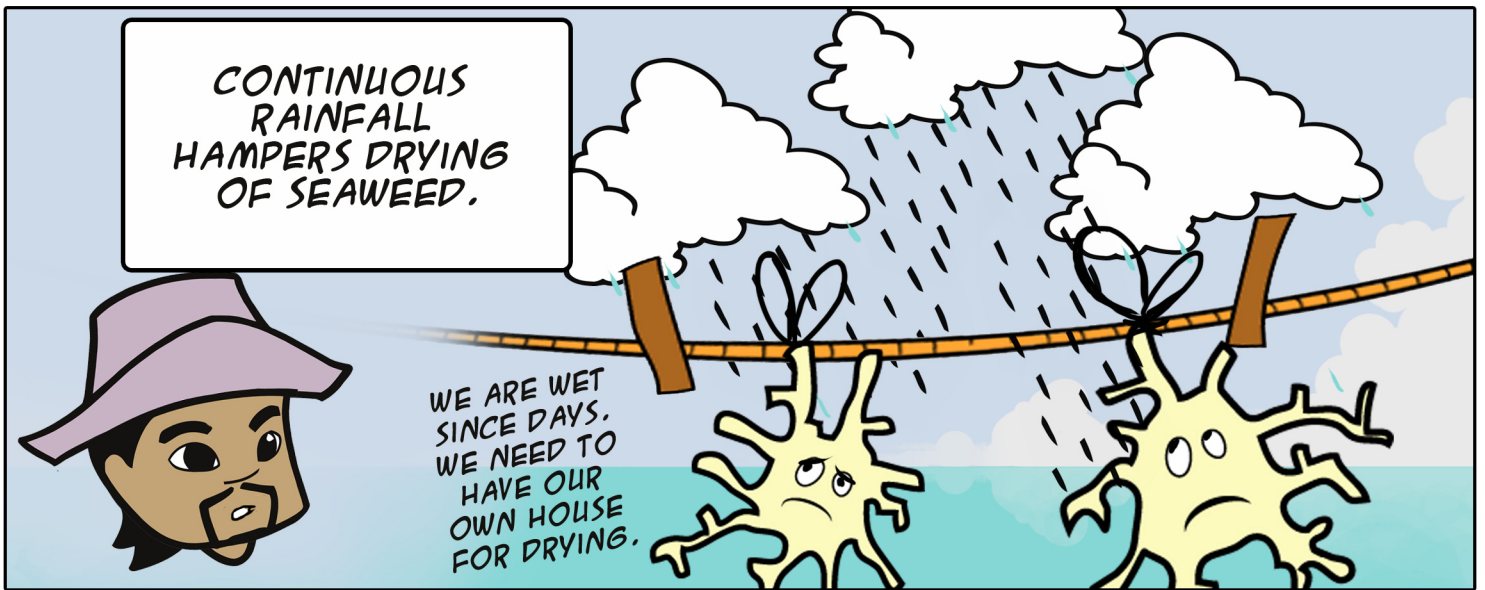


SEAWEED NEEDS A STABLE ENVIRONMENT TO GROW - TEMPERATURE, SALINITY, NUTRIENT SUPPLY AND HEIGHT OF WAVES.



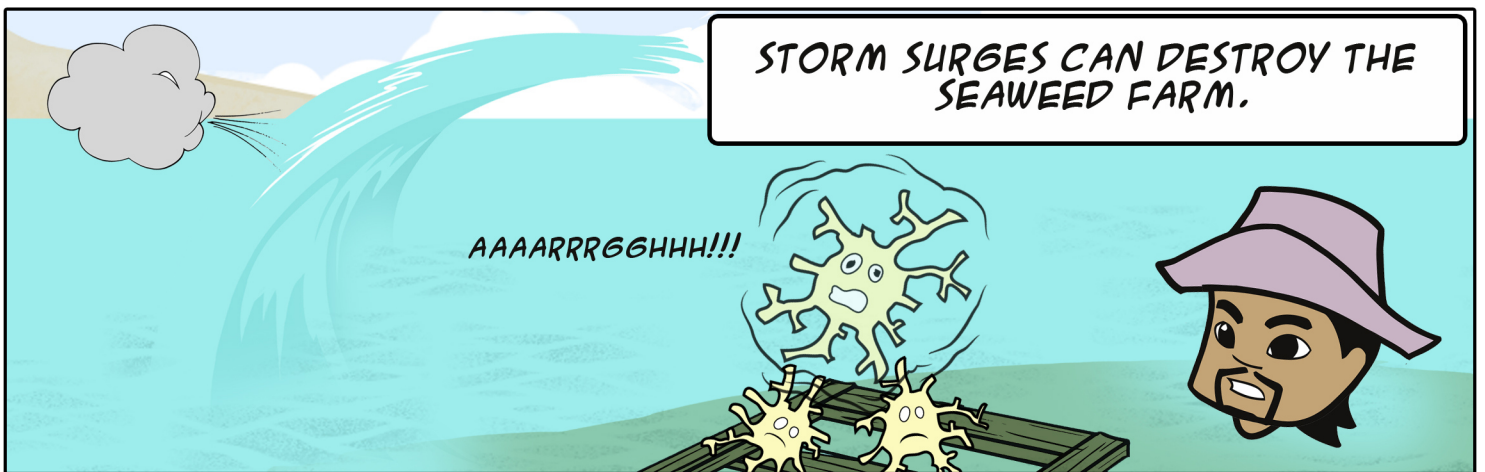
INTENSE RAINFALL AND FRESHWATER INFLOW FROM RIVERS CHANGE THE SALINITY LEVEL, WHICH IS NOT GOOD FOR SEAWEED.

IT COULD USE MORE SALT.



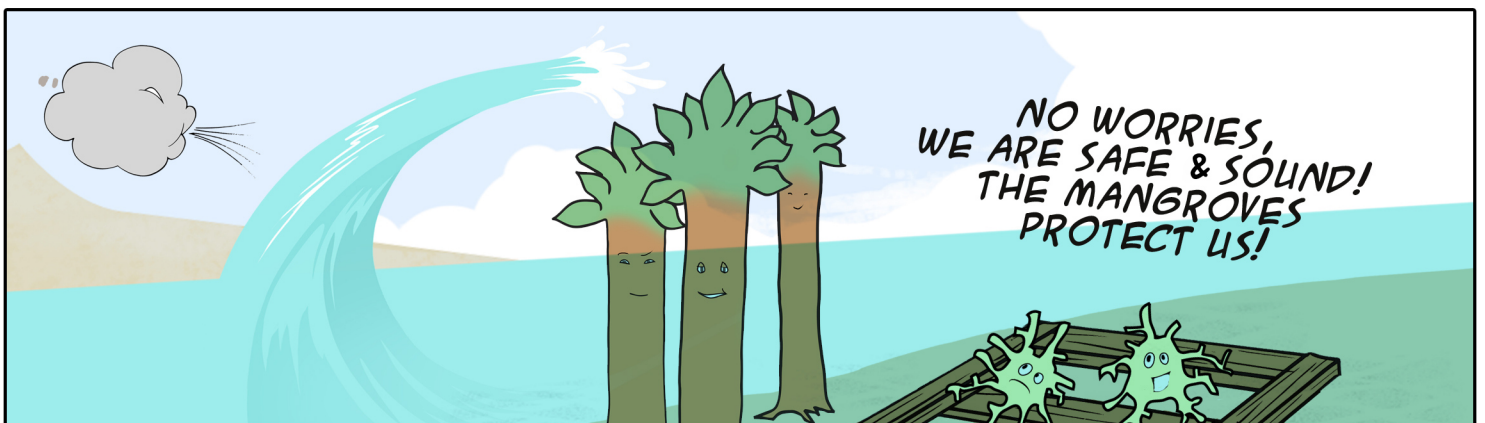
CONTINUOUS RAINFALL HAMPERS DRYING OF SEAWEED.

WE ARE WET SINCE DAYS. WE NEED TO HAVE OUR OWN HOUSE FOR DRYING.



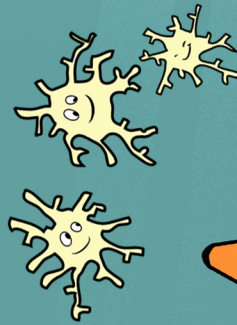
STORM SURGES CAN DESTROY THE SEAWEED FARM.

AAAARRRGHHH!!!

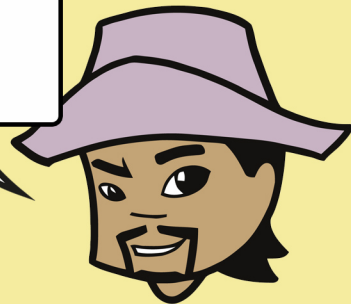


NO WORRIES, WE ARE SAFE & SOUND! THE MANGROVES PROTECT US!

WE NEED TO LOOK AFTER OUR ENVIRONMENT!  
WE SHOULD ALSO THINK ABOUT ALTERNATIVE  
INCOME SOURCES LIKE INTEGRATED SEAWEED  
FARMING WITH SHRIMPS.



PROCESSING SEAWEED TO  
MAKE CRACKERS IS A VERY  
DELICIOUS OPTION! MY KIDS  
AND I LOVE THEM!

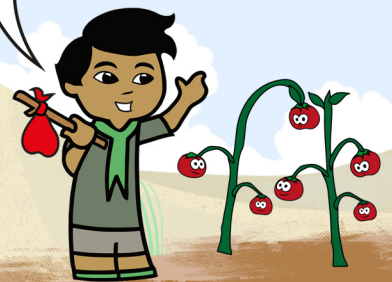
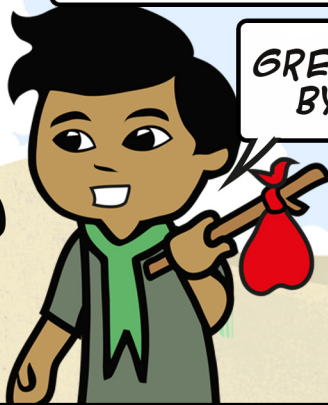


TALKING  
ABOUT FOOD MAKES  
ME FEELING HUNGRY.  
LET'S FIND A PICNIC  
PLACE RON!

HM...  
I HAVE TO TRY  
THEM NEXT TIME.

GREAT IDEA!  
BYE, SIR!

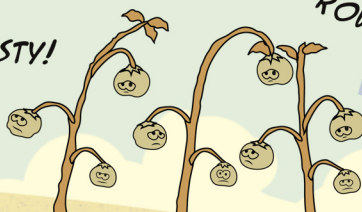
LOOK OVER HERE ARA!  
LET'S ASK, IF WE CAN BUY  
SOME TOMATOES.  
THEY LOOK SO JUICY!



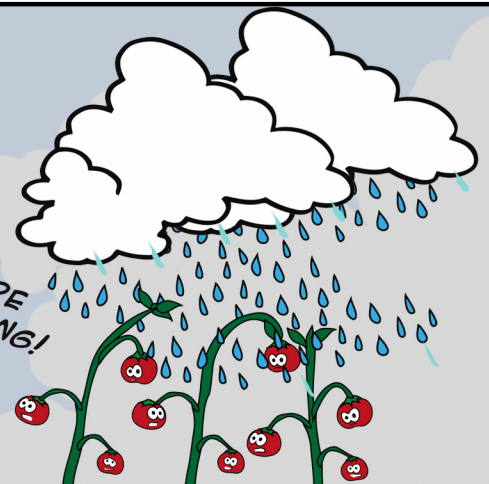
THANK YOU SO MUCH!  
WE'VE HAD A LOT OF  
DIFFICULTIES GROWING  
OUR TOMATOES - THE  
WEATHER KEEPS  
CHANGING SO MUCH.



THIRSTY!



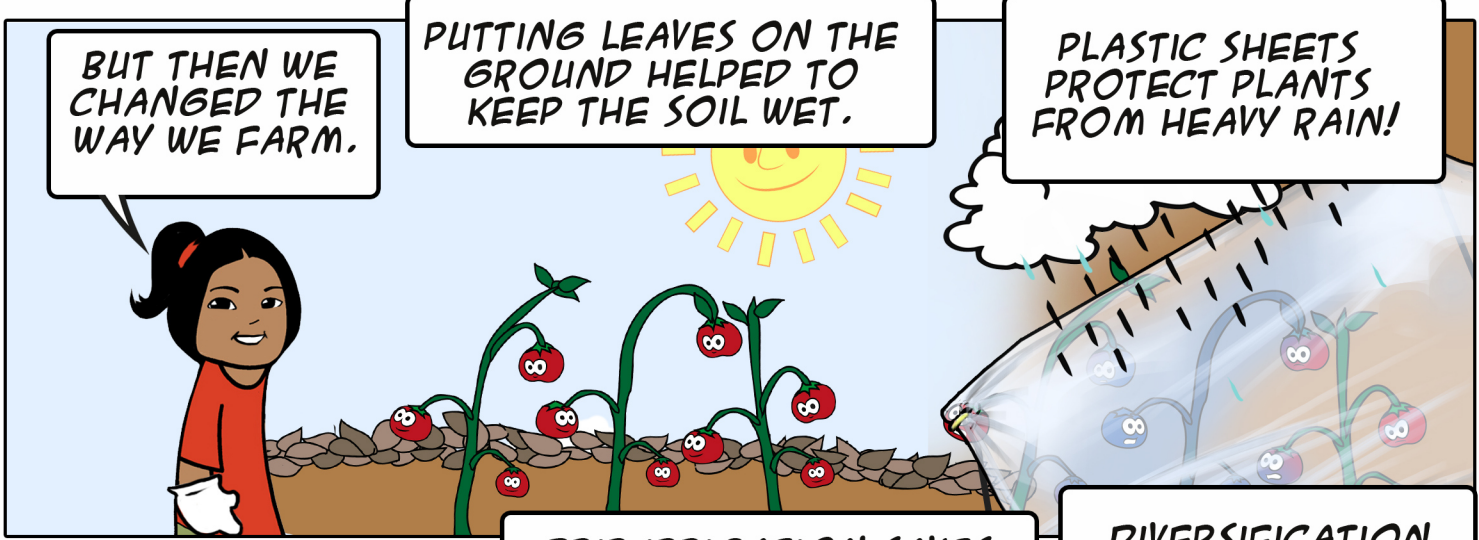
WE ARE  
DROWNING!



BUT THEN WE CHANGED THE WAY WE FARM.

PUTTING LEAVES ON THE GROUND HELPED TO KEEP THE SOIL WET.

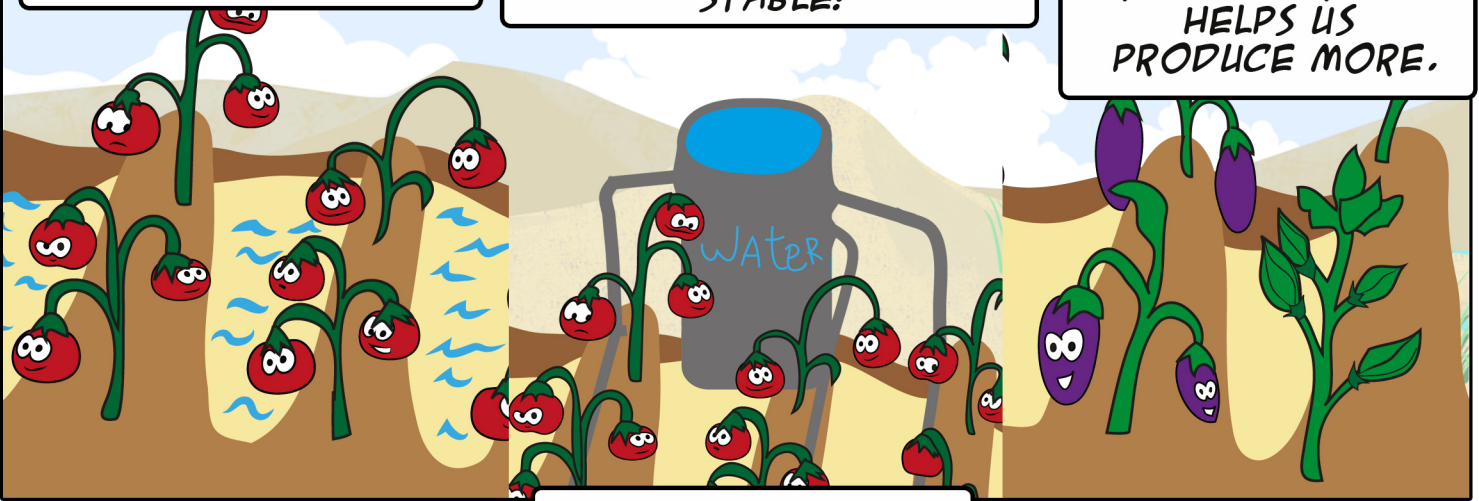
PLASTIC SHEETS PROTECT PLANTS FROM HEAVY RAIN!



RAISED BEDS PROTECT FROM FLOODING.

DRIP IRRIGATION SAVES WATER AND KEEPS THE SOIL MOISTURE CONTENT STABLE!

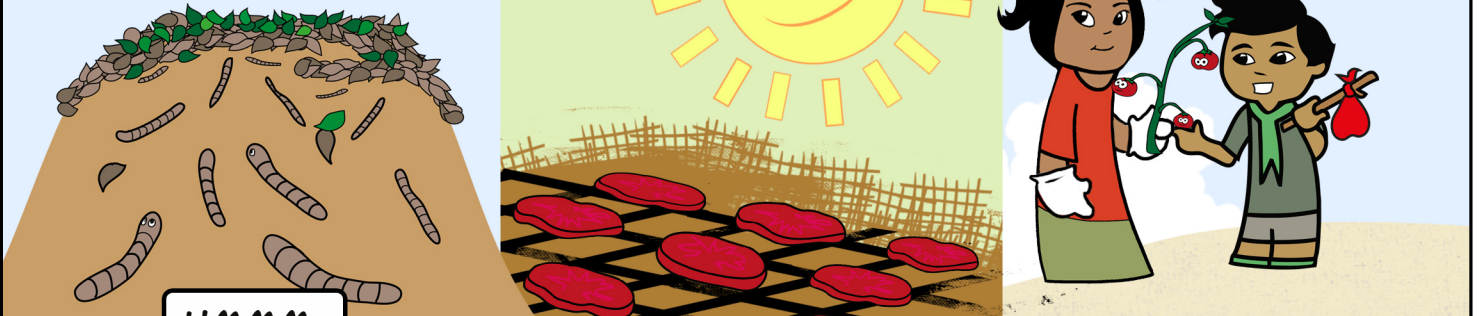
DIVERSIFICATION OF VEGETABLES WITH DIFFERENT GROWTH DURATION HELPS US PRODUCE MORE.



WORMS HELP TO CONVERT BIOMASS IN FERTILE HUMUS WHICH CAN BE USED AS ORGANIC FERTILIZER.

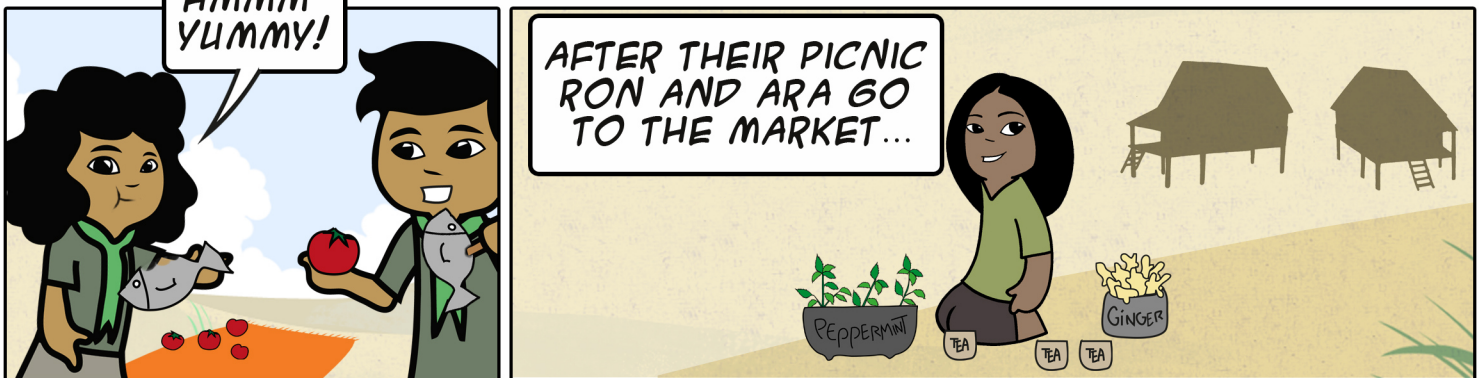
OUR SUN DRIED TOMATOES CAN BE CONSUMED MONTHS AFTER HARVESTING.

AND NOW WE HAVE THESE DELICIOUS TOMATOES. PLEASE TAKE SOME!



HMMM YUMMY!

AFTER THEIR PICNIC RON AND ARA GO TO THE MARKET...



ARA! YOU HAVE TO SMELL THIS AROMATIC PEPPERMINT! DO YOU GROW IT BY YOURSELF MADAM ?

HMMM...

THANK YOU, YES I DO! BUT NOW I HAVE TO PLANT HIGHER IN THE MOUNTAINS, BECAUSE OTHERWISE THE PEPPERMINT WON'T GROW PROPERLY.

I ALSO MAKE PEPPERMINT TEA TO MAKE SOME EXTRA MONEY AFTER THE HARVEST. THE TEA IS VERY HEALTHY, I ONLY USE ORGANIC FERTILIZER.

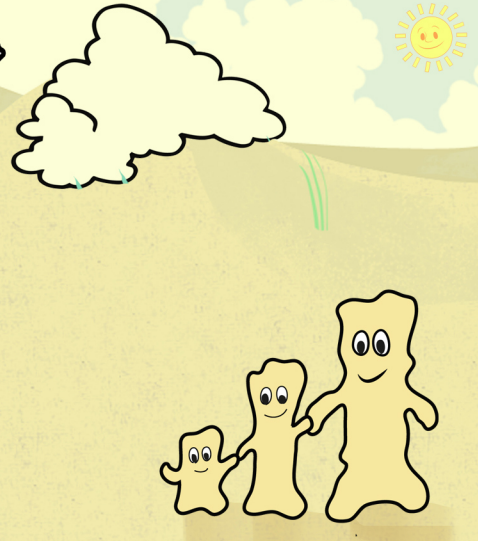
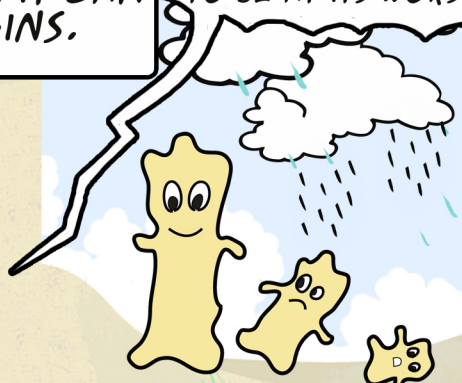
WHAT ABOUT THIS GINGER ? IS IT GROWING WELL ?

TEMPERATURES ABOVE 32°C CAN CAUSE SUNBURN OF THE PLANT.

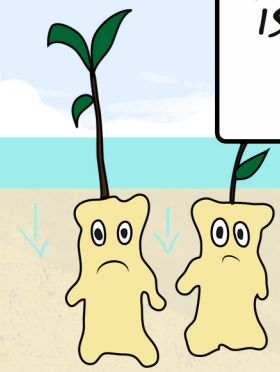
IT'S GETTING HOT HERE!

WELL, I NEED TO START WITH PREPARING MY LAND IN THE DRY SEASON. GINGER NEEDS GROW QUITE A BIT BEFORE IT CAN STAND HEAVY RAINS.

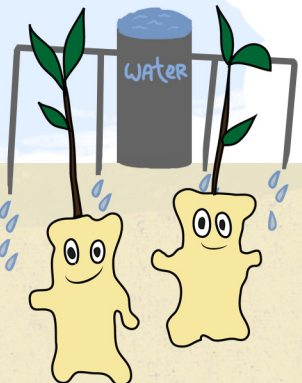
THE MONTH OF APRIL IS THE PEAK OF THE DRY SEASON WHEN EL NIÑO IMPACT IS EXPECTED TO BE AT ITS WORST.



GINGER IS SENSITIVE TOWARDS WATER-LOGGING. THAT'S WHY DRIP IRRIGATION IS BETTER BECAUSE IT KEEPS THE SOIL CONSTANTLY MOIST.

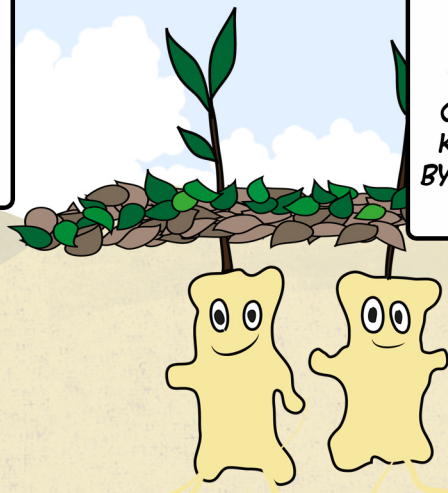


MY FEET ARE WET. I DO NOT FEEL WELL!



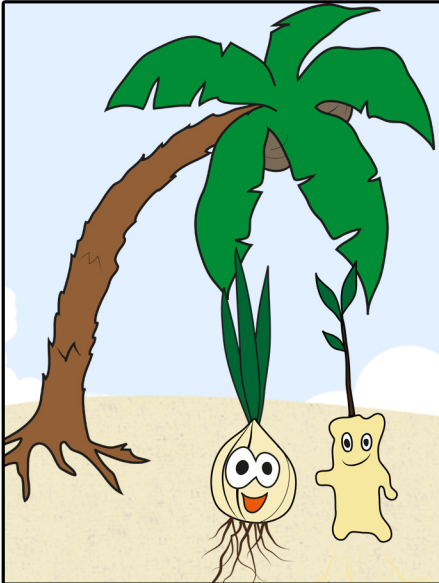
FOREST LEAF BIO MULCHING HELPS TO KEEP THE SOIL TEMPERATURE IDEAL FOR GINGER.

GINGER CAN BE GROWN IN FOREST PLANTATIONS, WHICH PROVIDE SHADE TOGETHER WITH COCONUT OR ONION PLANTS. IF ONE KIND OF CROP IS DAMAGED BY EXTREME NATURAL EVENTS, THE OTHER MIGHT SURVIVE



I DRY THE GINGER AND PRODUCE SONTH AND GINGER TEA WHICH I SELL HERE. NOW I HAVE ADDITIONAL INCOME ALL YEAR LONG.

I AM HAPPY TO HEAR THAT YOU FOUND SOLUTIONS TO ADAPT TO THE CHANGING CLIMATE. THAT WAS VERY INTERESTING! GOOD LUCK WITH YOUR BUSINESS!

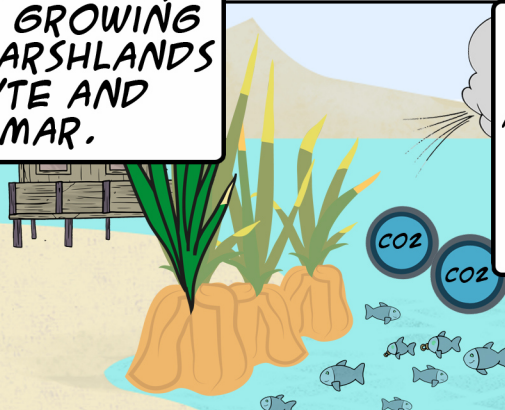


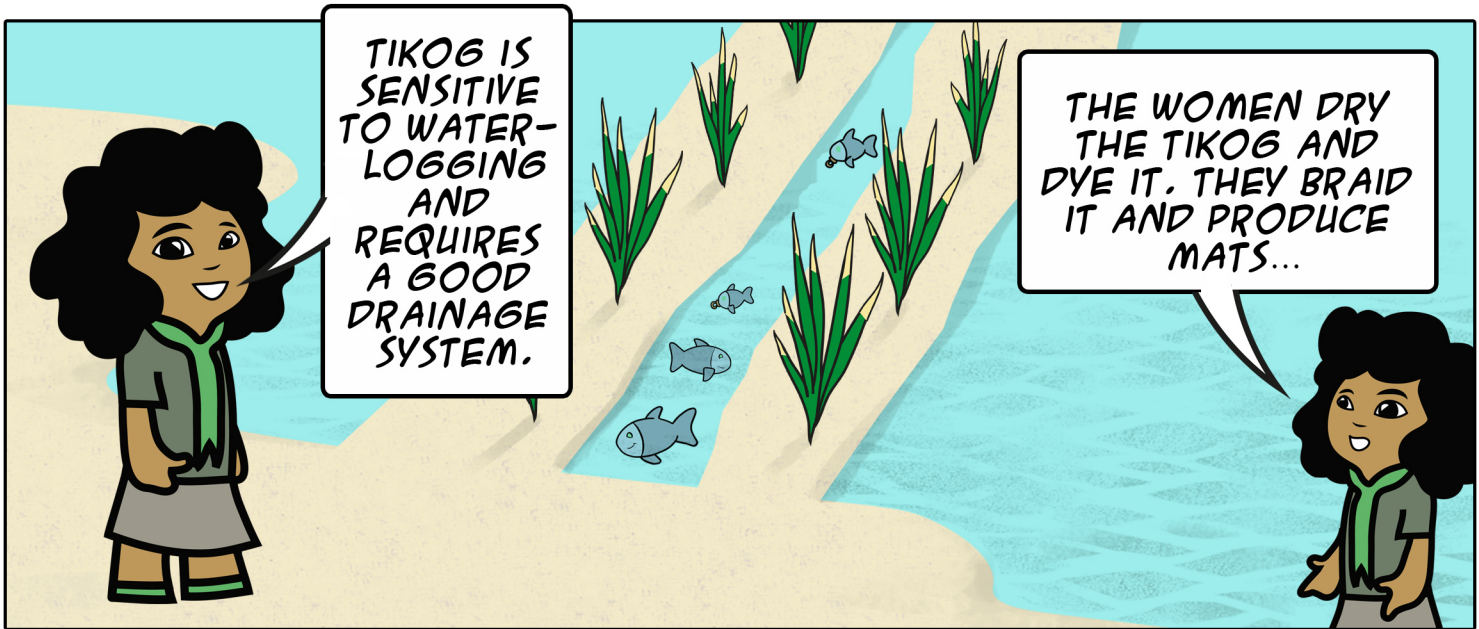
HEY RON! COME OVER HERE! LOOK WHAT I FOUND!

WOW! THIS IS BEAUTIFUL! WHAT KIND OF MATERIAL IS THIS?

THIS IS TIKOG, A SEDGE PLANT, WHICH IS GROWING IN THE MARSHLANDS IN LEYTE AND SAMAR.

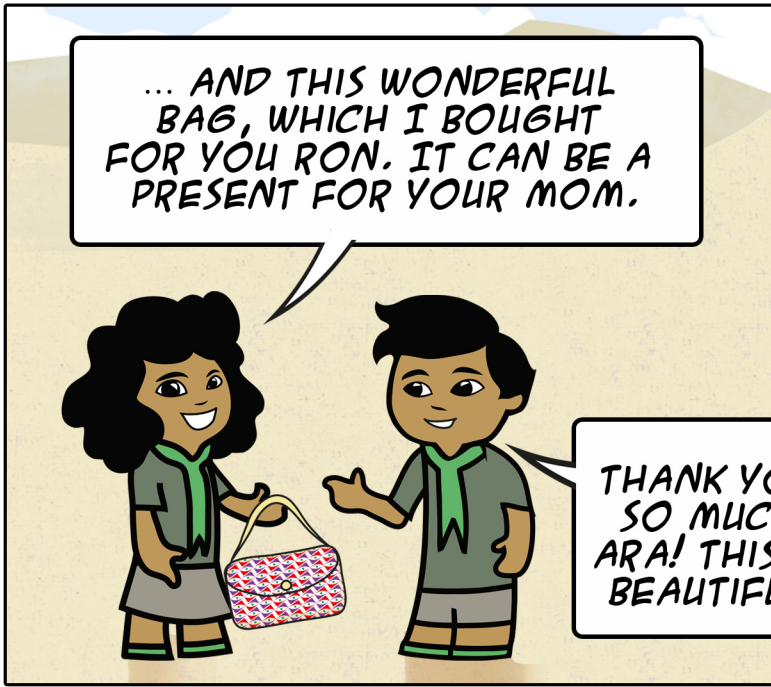
TIKOG PROTECTS THE COAST FROM TYPHOONS AND FLOODING, PROVIDES SPACE FOR FISHES AND FILTERS THE WATER BEFORE IT REACHES THE OCEAN.





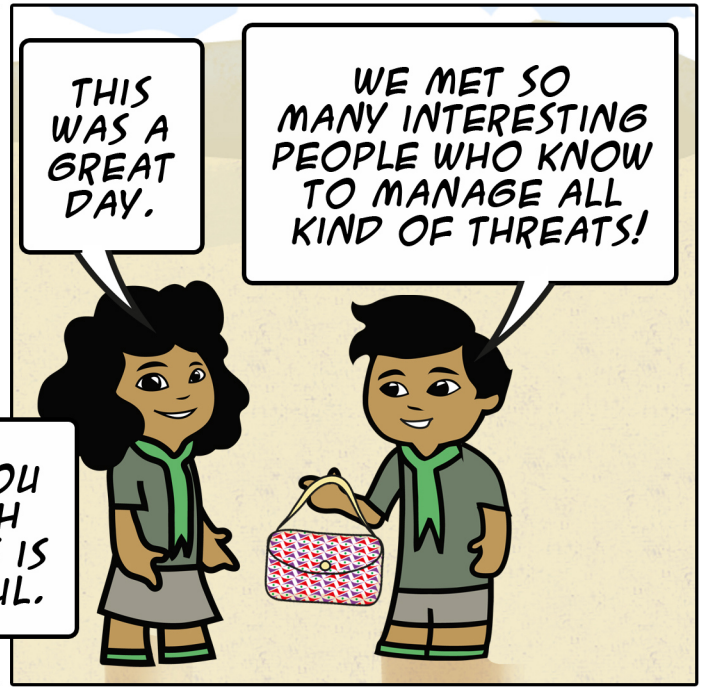
TIKOG IS SENSITIVE TO WATER-LOGGING AND REQUIRES A GOOD DRAINAGE SYSTEM.

THE WOMEN DRY THE TIKOG AND DYE IT. THEY BRAID IT AND PRODUCE MATS...



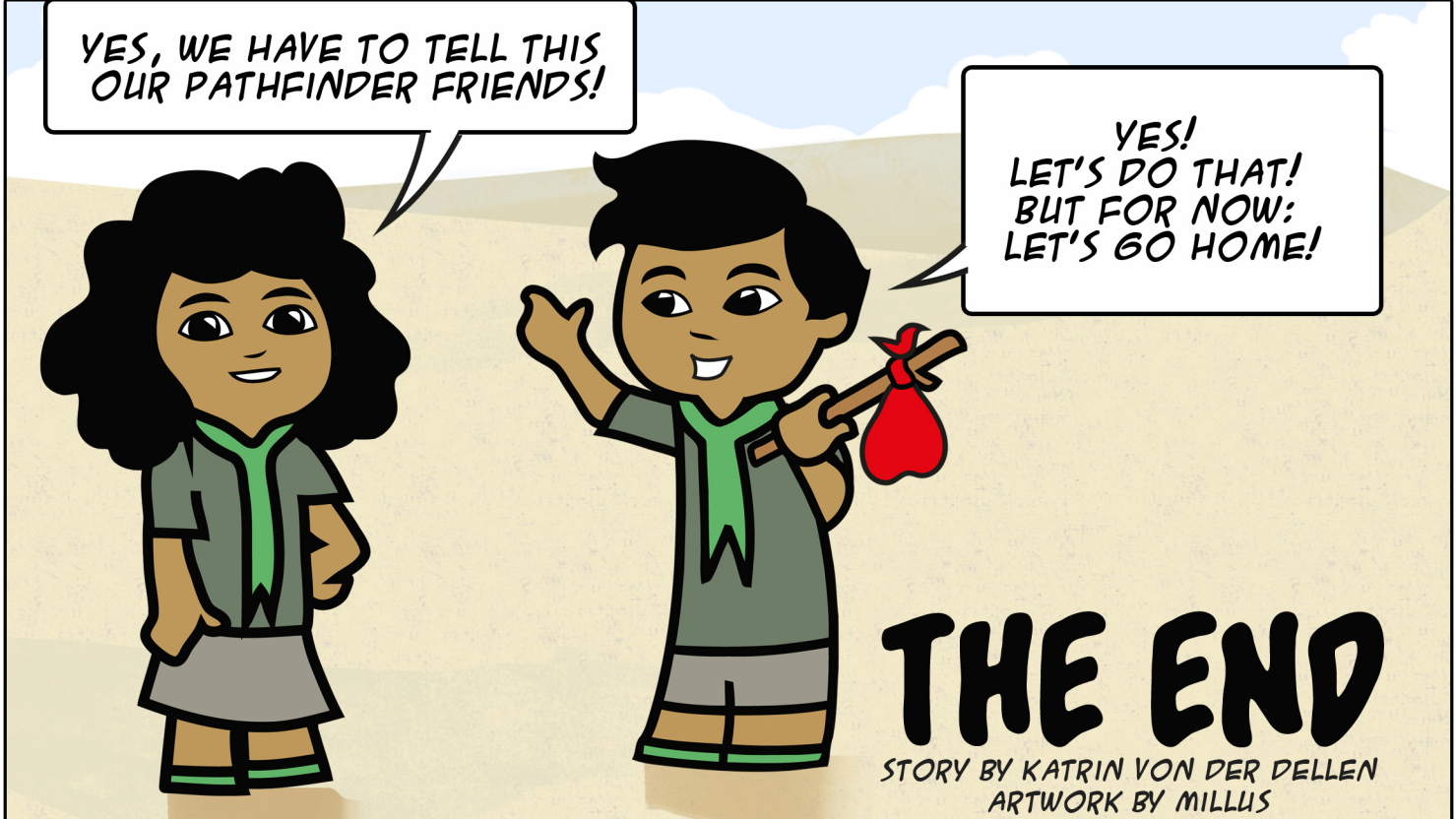
... AND THIS WONDERFUL BAG, WHICH I BOUGHT FOR YOU RON. IT CAN BE A PRESENT FOR YOUR MOM.

THANK YOU SO MUCH ARA! THIS IS BEAUTIFUL.



THIS WAS A GREAT DAY.

WE MET SO MANY INTERESTING PEOPLE WHO KNOW TO MANAGE ALL KIND OF THREATS!



YES, WE HAVE TO TELL THIS OUR PATHFINDER FRIENDS!

YES! LET'S DO THAT! BUT FOR NOW: LET'S GO HOME!

# THE END

STORY BY KATRIN VON DER DELLEN  
ARTWORK BY MILLUS

