PEACE HOUSE
RESEARCH AND INNOVATION CENTRE OF EXCELLENCE
GBOKO BENUE STATE - NIGERIA

KINGS AND PRIESTS - CLASS OF 2026



Researchers & Innovators

AS KINGS AND PRIESTS UNTO OUR GOD IN THE PROFESSIONAL PLATFORM

Gbile Akanni

FAREWELL CHARGE
Engr. TSERGA Dennis D.

Kings AND Queens
FOR SUCH A TIME AS THIS
ENGR D.S. OLUFOLAJI

LET NO MAN DESPISE THY YOUTH
SEGUN GBOLAGADE

Bridging Town & Gown
BABATUNDE OJEGBILE, FUNSHO OGUNSHOLA & EBENEZER OJO

Convocation Lecture PROF. PIUS MBU OBEN

NATIONAL ANTHEM

Nigeria, we hail thee,
Our own dear native land,
Though tribe and tongue may
differ,
In brotherhood we stand
Nigerians all,
And proud to serve our sovereign
Motherland.

II
Our flag shall be a symbol
That truth and justice reign,
In peace or battle honoured,
And this we count as gain,
To hand on to our children
A banner without stain.

III
O God of all creation,
Grant this our one request:
Help us to build a nation
Where no man is oppressed,
And so with peace and plenty
Nigeria may be blessed.

I pledge to Nigeria, my country
To be faithful, loyal and honest
To serve Nigeria with all my
strength
To defend her unity and uphold
her honour and glory
So help me, God.

PEACE HOUSE
RESEARCH AND INNOVATION
CENTER OF EXCELLENCE

Our Vision

"Raising a new generation
of Christ-centered visionary leaders who will positively transform Africa and beyond through indigenous innovation, cutting-edge research, and strategic application of science and technology."

Our Mission

To Inspire, Train And Equip Young People,
In The New Creation Life,To Create,
Design And Develop Disruptive, Locally-relevant,
Cost Effective Technologies That Address Critical Challenges In Health, Agriculture, Education, Energy, And Transportation Through Multidisciplinary Scientific Research And Collaboration."

Our Motto

"...not for price, nor reward..."
Isaiah 45:13

editorial

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To the glory of God, this edition of the graduation magazine celebrates more than the completion of a programme; it celebrates a journey of transformation of life, discovery of purpose, spiritual growth and professional establishment. For the graduating PRICE Set 4 interns – the **Kings and Priests Set**, the journey has been one of discovering your identity, development of character, acquiring technical knowledge and skills, professional empowerment and being equipped to serve God and society with excellence.

In this edition, the Lord opened our eyes to see what is required of us as: **"Researchers and Innovators as Kings and Priests unto Our God in the Professional Platform"** and clearly laid the foundation for our call in Christ Jesus, which is to carry His presence and purposes to every scope and sphere of life. The **Farewell Message from the Board** reflects on their multidisciplinary experience and charges them to remain faithful ambassadors, lifelong learners and responsible stewards of their gifts, skills and the investments of God upon their lives.

The searchlight of the Lord also falls on "**Kings and Queens for Such a Time as this**" emphasising the need to stand up as Joseph, David, Daniel, Deborah, Jael, and Esther in the professional field and bear the responsibility of purposeful leadership, service, and innovation. At the same time, **"Let No Man Despise Thy Youth"** challenges us to rise with transformed faith, word, character, purity, manner of life, attention to God's word and to use the skills acquired to develop meaningful solutions for your profiting to appear to all men by the grace of God.

"Bridging Town and Gown" extends this vision to the wider society, highlighting research, innovation, integrity and impact. This is another charge for the envisioning of the graduating set and all researchers, scientists, technologists, lecturers and innovators. The Convocation Lecture, "**Advancing Aquaculture: Aquaponics as a Catalyst for Sustainable Socio-Economic Development for Research and Innovation in Africa"**, identifies aquaponics as a sustainable, integrated solution to Africa's food-security and socio-economic challenges, emphasising efficient use of water and land, nutrition, employment, inclusion, and environmental stewardship.

Together with contributions of the graduating interns from three PRICE research streams, these pages tell the story of transformation experienced, discovery of embedded potentials, application of theories to solving real-life problems and the release of God's grace. This will be a masterpiece to walk through and prayerfully meditate upon as generation prepared to shine for Christ and contribute meaningfully to Nigeria, Africa and beyond.



Researchers AND Innovators

as Kings and Priests unto Our God in the Professional Platform

Gbile Akanni

Now therefore, if ye will obey my voice indeed, and keep my covenant, then ye shall be a peculiar treasure unto me above all people: for all the earth is mine: And ye shall be unto me a kingdom of priests, and an holy nation. These are the words which thou shalt speak unto the children of Israel (Ex. 19: 5-6)

But ye are a chosen generation, a royal priesthood, an holy nation, a peculiar people: that ye should shew forth the praises of him who hath called you out of darkness into his marvellous light: (1Pet. 2:9)

Unto him that loved us, and washed us from our sins in his own blood, And hath made us kings and priests unto God and his father to him be glory and dominion for ever and ever. Amen (Rev. 1:5-6)

What a joy it is in my heart to stand here again with you, the fourth graduating set of the Peace House Research and Innovation Centre of Excellence (PRICE). You will be admitted into the PRICE Alumni Family (PAF) and be released into the world as cutting-edge researchers and innovators at the gate of your professional marketplace. But the peculiar thing about your set, as it is with each set that has been so released, is the name the Lord has conferred upon you as a class name: ***Kings and Priests unto God***. It is exciting for us to send forth into the world, *'Kings and Priests.'*

There is royalty in your priesthood. There is a great expectation from the heart of God concerning you and we also, to whom God lent you for the past two years. As your fathers in the faith, your teachers and disciplers, we are bubbling in our hearts with great longing for what you are going to be in the hand of God and in the nations of the earth. I also wish to congratulate your parents and disciplers who believed in God and in us, His servants, as to let you come this way, trusting that you will turn out right and you will be properly equipped and set forth for your destinies in this life. The vision for Peace House Research and Innovation Centre of Excellence is very clear to us right from the onset. God wants us to raise young men and women grown up in their youth, matured while they still have years of life to their advantage, and who are bearers of His presence, not only in the Church halls but in every sphere of human endeavour. They are priests who are not just engaged with ministry activities on the "pulpit" as we now know it, but whose pulpits are in their various professions where they show forth the glory of Him, who has called them unto glory and virtue. He called them to become partakers of His divine nature and makes them specimens of His new creation. They are men and women who bear excellence in their personalities but are ready to serve the Lord and establish the kingdom of Christ in this present world everywhere they go.

They are men and women who bear the life light, Christ's life, in their earthen vessels, and they walk in an unbroken communion with God as His priests and are yet able to stand in those places termed secular and change the narrative of those places as they bring them under the dominion of Christ as His kings. Daniel was one of such men. He served in the governments of several rulers of Babylon and did not lower the standard. He rather brought Babylon on their knees, including the king Nebuchadnezzar. And this Daniel, along with his three friends, ruled Babylon for their God, even though they were immigrants or captives of war. He became the first of the three Vice Presidents in that land.

Joseph was another one. He was not in the sanctuary, so to speak, but he bore the presence of God in his life. Whatever he

Mediocrity is not part of God's agenda for anyone He has redeemed from the power of sin.

was asked to manage prospered. He was bought as a slave in the house of Potiphar, but he became the ruler of whatever Potiphar had. He was cast into the prison unjustly for refusing to commit sin with the wife of his master, who dotted on him day and night. He would rather lose everything he had than lose the presence of God in his life. But there again, he took over the affairs of all prisoners. The prison warden had nothing to do but hand over to this peculiar man, who walked so closely with the God of heaven that he could bring dreams of the people around accurate interpretation to them. When no one was able to interpret king Pharaoh's dream, they rushed to bring him out of the prison house. He was the only one who could give light and direction to the whole nation in their time of perplexity. He was the one who managed the economy of Egypt till they became an economic power of their day. He was God's priest, anointed of the Spirit in economic affairs.
Deborah, Esther, and Jael are women who did so valiantly for God in their own peculiar positions. Priscilla was a great influence on Paul and Apollos, along with her husband, Aquila, with their business of Tent-making. They were in business, yet they were so knowledgeable in the word of God as to call Apollos aside to be instructed more properly in the truth of God's word. When God called your set "The Kings and Priests," you are being prepared to be kings and priests unto our God, and you are being positioned in the various gates to rule for Him in the midst of His enemies. Yet to understand what God is expecting of you, we need to look into the Scriptures where your name was taken from.

Now therefore, if ye will obey my voice indeed, and keep my covenant, then ye shall be a peculiar treasure unto me above all people: for all the earth is mine: And ye shall be unto me a kingdom of priests, ...

As soon as the Lord took the people out of the house of bondage in Egypt and they were baptized into the Red Sea, the Lord began to speak of what He had in mind for them: "If you will obey my voice indeed and keep my covenant, I will make you to become a peculiar treasure unto me, above all the people of the earth. Though all the earth is mine, I intend to make you the first and best among them all. You will be head and not the tail. You will be above only and not beneath" (Deut. 28:13).

Mediocrity is not part of God's agenda for anyone He has redeemed us from the power of sin. Anything less than excellence is not compatible with our Father in heaven. His vision of you is to make you a peculiar treasure to Himself. You will actually become a treasure to God, and by virtue of anyone you come in contact with, you will bring that treasure to bear on them.

This was what we saw with Joseph in Egypt, but each one of you will be a priest unto God, who is able to offer spiritual sacrifices to God anywhere you are found.
Now, the first indication is that God is longing to have a people, a kingdom where the citizens are priests, regardless of their professional career; whether they are farmers, lecturers, scientists, economists, researchers, innovators, housewives, drivers or politicians, and regardless of anything they may eventually be involved in. God intends that every one of them will be a priest. He intends that every one of them will be able to offer spiritual sacrifices acceptable to God. In which case, every one of them will have unlimited access to the very presence of God to engage Him and carry His presence into everywhere and everything they do. This is what God intends to make you.

The desire of God is never to have some people who are purely secular and some others purely sacred, serving God at the altar. That has never been the plan of God. The plan of God is such that right in the Chemistry laboratory, Mechatronics workshop or research

fields, while carrying out your chemical analysis, coding or construction activities, He has a priest who is handling test tubes, chemicals, Arduino kits, doing Complex Numerical Analysis, or handling machines; there is no break in communion between you and Him. And right in the laboratory and workshop, because the servant of God who connects Him to the earth is there, the presence of God fills the place; the wisdom of God comes down, and great discoveries are made as though from Him who created all the things in the beginning. Such that from that laboratory and workshop, you can conduct a spiritual service that will bring your colleagues to repentance and healing.

God is looking for a kingdom where everyone of the citizens is a priest, such that wherever they gather- two, three or four of them- He would be satisfied to be in their midst and right there, He can manifest His glory and excellence in their lives. And so, whether in the kitchen, or at the table, or on the steering wheel, God's presence is accessible. They bear the presence of God into everything they do, and they represent the interest of God's kingdom in the space of their endeavour. That is the kind of thing God wanted, and this is what we are trusting God to make you as you press on in your walk with Him and in your career development. If it pleases Him to call you into the Pulpit ministry, as He has called several of us, it is not because you are incapacitated of doing anything else.

But ye are a chosen generation, a royal priesthood, an holy nation, a peculiar people: that ye should shew forth the praises of him who hath called you out of darkness into his marvellous light:

What other thing is God expecting you to be in His hand? He called you out of darkness into His marvellous light. He called you to show forth the praises of Him among men. He wants your light to shine so brightly before men that they may see your good works and glorify our Father who is in heaven.
God's plan is for you to be put on the platform to showcase what God can do with a life so yielded in His hands. He wants to plant you in different locations of the earth as kings and ambassadors of the Kingdom of God.
You were brought into Peace House Research and Innovation Centre of Excellence for this purpose. As we release you from here now, our prayers go with you. We will hear good news about you, how, through your life, our God is being glorified on the face of the earth. You are a royal priesthood, a holy nation, a peculiar people, and people will mark you out everywhere you go, as one whose life demonstrates the glory, the virtue and the excellence of our God. But you are not going to live just for yourself.
You are His priest. You are His king. You are His ambassador. You are His mouthpiece among men on the earth. This is what you are raised and carved out to be. You are an arrow, sharp and sharpened for Calvary. It is His praises and glory you must show wherever you go.

If you will obey my voice and keep my covenant:
There is one matter I must bring back as an emphasis to your heart before you leave us here. The kingdom of priests, as glorious as it is, is only offered to men and women who have been delivered from sin, from 'Egypt,' so to speak.
It is only as you have been redeemed from the life of sin and of the flesh that you can actually live as priest unto God continually. You will be His priest, not just when we gather in the fellowship but even when you are alone in your room.

In Exodus chapter 19, we drew our text from; the Holy Spirit highlighted some things that need your attention. The Lord said to him, "This is what you will say to the house of Jacob and tell the children of Israel, 'You have seen what I did to the Egyptians and how I bore you on eagle's wings and brought you to Myself. Now therefore, if ye will obey My voice indeed, and keep My covenant, then..."
I want you to note a few words here!
"... if ye will obey My voice indeed, and keep My covenant, then ye shall be a peculiar treasure unto Me above all people: for all the earth Is Mine: And ye shall be unto Me a kingdom of priests, and an holy nation."

These are the words which thou shalt speak unto the children of Israel. So, may I first say that God did not begin to speak about a kingdom of priests to the people that were in Egypt. When they were in Egypt, it was an abomination for them to offer any sacrifice to God. Even Pharaoh said, "You can stay here and make your sacrifices unto God. Worship your God in Egypt." Do you remember that Moses said, "God forbid! How can we offer the abomination of Egypt to our God? We will not offer sacrifices to our God while we are still living in Egypt."
Even when Pharaoh said, "Just go for some three days; leave all your properties and your belongings in Egypt. Go and worship your God. Leave your wives; leave your children. Go three days and worship your God anyhow you like." That

proposal was not acceptable to Moses! He refused blatantly.

You must know this: A kingdom of priests has never been offered to those who are presently located in Egypt of sin and sinfulness. Those who are still living in sin, who are enemies of God by heart and lifestyle, those who are still in the house of bondage to Mr Flesh cannot be priests to our God.

You may sing in the choir or get involved in religious activities; it is an abomination to God, once you are still in your 'Egypt.' Being a kingdom of priests unto our God is not for those who just had a casual or momentary deliverance from sin and addictions; it must be a permanent experience. All the pursuit of Egypt must be buried in the "Red Sea", where your old life has been buried for you to live a brand new life in Christ Jesus. All about your life must be transformed, and you are now living for Jesus. It is not a three-day out of 'Egypt' and back again into the house of bondage. So, never think that you are one of those men and women who are called The Royal Priesthood or A Kingdom of Priests when, either secretly or publicly, you are an Egyptian at heart. Egyptians can never be God's priests.

Have you experienced the saving grace of our Lord Jesus that buried all your "Egyptian traits, acquaintances and entanglements" in the blood of the Lamb? Are you free from every hold of sin? This is a matter you cannot ignore even as you leave us. If in all the years here, you have escaped all the opportunities to make your life right with God, today is the acceptable day and this is the time appointed by God for you. Do not waste another day. Do not waste another hour of your visitation.

When a man has been set free from the hold of sin and Satan, he becomes obedient to the Lord and to His word. Obedience to God's word is a mark that will keep you on this path to glory. All the blessings outlined in Deuteronomy 28:1-14 will only be yours as you walk in obedience to the word of the Lord, day by day.

To be a kingdom of priests is to walk in a covenant relationship with the Lord.

A covenant relationship with God is not a casual promise. It is a commitment you have made to God not to betray Him nor sell out in any case. It is to walk in the light of God's word for your life from day to day. All you will do in life henceforth must be in keeping with your covenant with God.

When you came into Peace House Research and Innovation Centre of Excellence, we made a covenant with God that we shall labour on your life till Christ is formed in your heart. We did not bother about your parents, referees, disciplers, guardians or bills. We were not concerned about anything to take from you. We only desired to see you become a new, sharp threshing instrument with grace to do exploit in the marketplace through your professional platforms. Now that you are about to leave us, we urge you to make a covenant with God to walk with Him, to honour His word in your life and to be faithful to the very end. Others may misbehave; you cannot.

You are a man or a woman of covenant with God. God is a covenant keeper. He will keep the covenant with you till you have become all He purposed to make you. But you also must be a covenant keeper also for He abhors a betrayer of trust. and not a covenant breaker.

Pressure will come on you to break your covenant with God; others may mock you that you are so narrow-minded, that you are still keeping your covenant with God. If you stand and walk in the covenant, you will indeed be a peculiar treasure in His hands, and He will give you a space to shine His glory among men in all the earth as kings and priests.

Abstain from fleshly lusts which war against the soul.

"Beloved, I beg you as sojourners and pilgrims, abstain from fleshly lusts which war against the soul, having your conduct honourable among the Gentiles, that when they speak against you as evildoers, they may, by your good works which they observe, glorify God in the day of visitation" (1 Peter 2:11-12 NKJV).

As one who is being prepared for glory and virtue, bearing the presence of God on your life, I must join my voice to that of the elder: "***I beg you as sojourners and pilgrims; abstain from fleshly lusts which war against the soul***." Fleshly lusts confront the young with such a force, but it is only seeking to bring your soul into captivity. It seeks to perforate your beautiful destiny with irreparable holes. What to do is to abstain from it. Do not be lured to start it. It seeks to addict you and keep you enslaved. The Lord will hold your hand to walk all the way until His glory breaks forth on your life. To abstain from fleshly lust, you need to pursue righteousness and faith with all who call on the name of the Lord from a pure heart. Keep company with your colleagues in PRICE Alumni Family (PAF) who are passionate about God and about His purpose. Do not keep company with loose men and women who have no value for the life God took all these years to grow in you.

We are eager about what God will make you. Your resource persons, instructors, lecturers and disciplers are praying and will still be praying for you. Keep the links and do not cut off from them. We are praying and trusting God for your progress. It shall be well with you in Jesus Name.

God bless you.



FAREWELL CHARGE

PRICE SET 4 GRADUATION/COMMISSIONING

Engr. TSERGA Dennis D.

Two years ago, you were admitted under various disciplines to pursue your training in research and innovation in PRICE. Today, your graduation is due. The LORD has faithfully accompanied you throughout your training period. He who began this good work in you has graciously brought you to the finishing point.

At this point that we are ready to fervently pray together and release you with divine grace and power; we wish to remind you of the rare treasures you have received in our midst. These components of the training are the keys that have capacity to unlock excellence in you for the rest of your lives, wherever you go and whatever you are led by the Spirit of God to do.

The LORD God has raised you in PRICE as "kings and priests" to establish His Kingdom in this world. He has equipped and branded you with the excellent spirit of Christ to exercise dominion over darkness and subdue it in your lives and in your respective professional careers for His glory. Your consistent reign in life can only be by the power of an endless life, as "priests" under Christ Jesus, our High Priest after the order of Melchisedec.

In the course of your training, we have demonstrated to you that the life of excellence is not located in the old life of self that relies on natural brilliance. It is domiciled in Christ, by whom we draw all our knowledge, understanding and wisdom from the Father of lights.

Christ in you is the only hope of the manifestation of God's glory in your life, physically, professionally, spiritually, in marriage and at work. In Him dwells all the treasures of wisdom and knowledge, with the fulness of the Godhead dwelling in Him bodily. You have begun to discover for yourselves in every endeavour, that you are complete in Christ, who is the head over all principality and power.

You were admonished to submit your life to be trained in discipleship, to follow us as we follow Christ. You have followed us in discipleship to observe and learn the practical lifestyle of Christ. In this manner, you have experienced living by faith as touching all things pertaining to personal needs, godliness, research and innovation.

PRICE has given you a multidisciplinary academic training. You had the rare privilege of receiving basic competences in any combination of your choice in such fields as Biosciences, Environmental Management, Monitoring and Assessment, Health, Safety and Environmental Studies, Information and Communication Technology, Leadership and Entrepreneurship Studies, Mathematical Modelling and Mechatronics, depending on your preferred area of research and innovation. Your final year projects attest to the amazing versatility you have acquired here in no more than two years of training under God.

Going forward, we charge you to hold fast to these treasures you have acquired. They will guarantee your growth to heights of divine effectiveness and fruitfulness, as "a city set on a hill that cannot be hidden".

You must never forget that Christ in you is both the beginning and the continuing principle that secures our excellence in any field of endeavour. Therefore, continue to be rooted and built up in Christ. Abide and abound in Him with meekness and patience. Do not allow anyone cheat you through philosophy and empty deceit, according to the tradition of men and according to the basic principles of the world, that are contrary to the life and teachings of Christ.

We are sending you forth to be ambassadors for Christ. For unto this we are all called in Him: to live the rest of our lives for Him and neither for our own selves nor for any other. All our vocations in life are but specialised platforms to show-case His life, which we carry, and thus appeal to everyone we encounter to also be reconciled to God. Be the worthy ambassador of our King wherever you go.

You are equipped with the New Creation Life, trained to continue learning Jesus and to ever live following Him. You have

also been shown how to receive the relevant solution from Heaven to resolve every problem and conquer every challenge. This investment has capitalised you as a steward of the manifold grace of God. It is required of you as a steward that you be found faithful. God abhors betrayal of trust.

Do not lose faith in the life of Christ that you carry. The just can only survive in right standing with God by faith. We can only continue to do exploits by the practical exercise of faith in our God. Only as we grow in the knowledge of Him shall we also grow in faith and go from strength to strength, doing exploits. This is the life that He provided for you through your training in PRICE.

We are sending you forth to be fruitful. Go and multiply this kind of Christ-life in all areas of human endeavour. You have been made into a new and sharp instrument for divine excellence upon the Earth. God shall open doors for you to draw others along your path who shall follow you and be formed as you have been. You shall call them to follow you as you follow Christ in order to be made for His use. They shall leave all to follow you as you also left all to follow us and they shall also be made as you reveal these same principles of the life of Christ to them.

Your discipleship learning process is not yet over. You must continue to secure the yoke of Christ upon your life and keep learning His life until you become like Him in all things unto the full measure of His stature.

For your continuing discipleship, endeavour to keep your discipleship relationships open, active and functional. These relationships include those with members of your set, your lecturers and course administrators, PRICE alumni members, etc. We all remain available to keep assisting you as God creates the space for any of us.

We are watching and praying to soon begin to hear the endless breaking news of your exploits, as you step out in faith.

FEAR NOT! Be strong and very courageous! Faithful is He who called you, who also will do it.

AMEN.

Your brother,

Engr. Dennis D. Tserga;

B Sc (Ibadan), M. Sc (Fourah Bay),

MNSE.

Chairman of the Board.



Kings AND Queens

FOR SUCH A TIME AS THIS

A Charge to Our Graduating Interns

Engr D.S. Olufolaji

As I reflect upon this graduating class and the young men and women we celebrate today as Kings and Queens, my heart is filled with gratitude to God and great expectation for the future that lies before you. Your journey here has not merely been academic. It has been a season of preparation, shaping you for influence, leadership, innovation, and service in your generation. The greatest question before you is not what profession you will enter or how successful you will become, but **whether you understand who you are and what God created you to be.**

One of life's greatest tragedies is to possess tremendous potential and never discover it. Throughout Scripture, God often revealed identity before assignment. Gideon was called a "mighty man of valour" while still hiding from the Midianites (Judges 6:12). Jeremiah was ordained before he was formed in the womb (Jeremiah 1:5). David was anointed king while tending sheep. Therefore, never see yourselves merely as graduates. **You have been prepared as instruments through whom God can accomplish His purposes on the earth.**

Jesus taught us to pray: *"Thy kingdom come. Thy will be done in earth, as it is in heaven."* (Matthew 6:10)

God's Kingdom finds expression through men and women who carry His values, wisdom, character, and power into every sphere of life. I believe He is raising such men and women in this generation, in government, engineering, science, education, medicine, business, technology, and every domain of human endeavour. Your education has given you knowledge, competence, discipline, and perspective. But beyond these is an even greater advantage: **you have been taught to live by faith.** ***Your disposition henceforth should be***

"I can do all things through Christ which strengtheneth me." (Philippians 4:13)

Therefore, never conclude that any problem is too great, any vision too ambitious, or any dream beyond your reach. **Have the courage to attempt what others consider impossible.** Yet there is a truth every King and Queen must learn early in life: **royalty is not about privilege; it is about service, sacrifice, and responsibility for the welfare of others.** The world's understanding of royalty often centres on power, status, and what can be received. God's Kingdom is different. **Crowns are symbols of responsibility before they are symbols of honour.** Positions of influence are given not merely for personal advancement but for the fulfilment of divine purpose.

Our Lord Jesus Christ said: *"Whosoever will be great among you, let him be your minister; and whosoever will be chief among you, let him be your servant."* (Matthew 20:26–27)

The greater the influence, the greater the responsibility. The higher the position, the greater the obligation to serve others. Esther's life illustrates this perfectly. She was elevated from obscurity to the palace and became queen, but her defining moment came when her people faced destruction. Mordecai challenged her:

"Who knoweth whether thou art come to the kingdom for such a time as this?" (Esther 4:14)

Esther understood that her position was not merely for her comfort. It carried an assignment. She therefore responded: *"If I perish, I perish."* (Esther 4:16)

That was when Esther truly became a queen. Not when the crown was placed upon her head, but when she became willing to sacrifice herself for others. The crown revealed her position; sacrifice revealed her character. So it must be with our graduating Kings and Queens. God has not prepared you merely to enjoy success or secure comfortable lives. **He has prepared you to become answers to the needs of your generation.** When difficult responsibilities come, do not flee. When your generation faces challenges, do not assume someone else will solve them. When God gives you an opportunity to stand for truth, righteousness, innovation, and transformation, do not shrink back. **Perhaps the reason God has brought you this far is the same reason He brought Esther to the palace: for such a time as this.**

There is another reality you must understand. The character and values cultivated within these walls may not always be appreciated in the environments into which you are going. You may find yourselves in places where your convictions are regarded as strange or inconvenient. Do not be surprised. Daniel found himself in Babylon. Joseph found himself in Egypt. Neither environment reflected the values of the God they served, yet neither allowed their environment to redefine them. Instead, they became instruments of transformation because they remained faithful. **The difference you observe between yourselves and the world is not evidence that something is wrong; it may be evidence that God has been at work in you.**

An arrow is fashioned in the safety of the quiver before it is released toward its target. God has been shaping you for a purpose. Therefore, stand firm. Let your character speak as loudly as your achievements. The world does not suffer from a shortage of intelligence; it suffers from a shortage of character. Be men and women whose integrity cannot be bought, whose convictions cannot be bent, and whose faith cannot be shaken. But your calling is not only to stand against what is wrong. Like Joseph and Daniel, you are also called to provide solutions to problems that have baffled men. Africa, the Church, education, healthcare, agriculture, governance, engineering, technology, manufacturing, and industry all face challenges. When you encounter these problems, do not shrink back. **Do not ask, "Who am I?" Do not say, "Someone else will solve it." Do not say, "It is impossible." For such a time as this, have you been prepared.** The God who gave Joseph wisdom in Egypt and Daniel understanding in Babylon has not changed. He can work through your minds, your hands, your skills, your education, and your faith. **You are not called merely to identify problems. You are called to solve them.**

We are living through one of the most significant technological revolutions in human history. **Artificial Intelligence is already transforming education, healthcare, engineering, business, communication, science, and virtually every sector of society.** As one who teaches mechatronics, programming, and innovation, and as a strong advocate for the responsible use of AI, I encourage you **not to fear this revolution but to engage with it wisely and courageously.** Every innovation ultimately begins with knowledge that God allows mankind to discover. Yet throughout history, many good things have been misused for destructive purposes. Therefore, we must approach AI with **wisdom, discernment, and purpose.**

For Africa in particular, this presents a unique opportunity. **This may be one of the greatest opportunities our continent has ever had to leapfrog traditional barriers to development and accelerate innovation.** We must not miss it. We must refuse to become merely consumers of technologies created elsewhere. **We must become creators. We must build. We must innovate.** We must develop solutions that address African problems. We must use AI to improve education, healthcare, agriculture, manufacturing, governance, and economic development.

We must train ourselves not only to use AI tools but to **design systems, create platforms, build products, generate intellectual property, and lead technological advancement.** The future belongs to **creators, not merely consumers.** We have a window of opportunity before us. We have an opportunity to attempt a meaningful catch-up before the technological gap widens even further. We have the opportunity to create our own AI systems, our own platforms, our own tools, and technologies capable of transforming industries and improving lives across our continent.

We must start somewhere, but we must start. Growth itself creates possibilities beyond what we can presently imagine. The first step often appears small, but it is the beginning of a journey that can alter the course of nations. At the same time, we must recognize the dangers associated with the careless use of Artificial Intelligence.

One of the greatest risks is **intellectual dependency.** If we constantly allow AI systems to think for us, reason for us, remember for us, write for us, and solve every problem for us, **our own abilities can gradually weaken.** Human beings grow through effort. Minds develop through thinking. Understanding deepens through struggle. When people increasingly surrender their thinking to machines, something invaluable is lost. Already, there are concerns that excessive dependence upon digital technologies is affecting attention spans, critical thinking, and cognitive endurance. If we are not

careful, a generation may arise that possesses unprecedented access to information yet lacks the ability to reason deeply about it.

The danger is not merely economic. The danger is intellectual and ultimately civilizational. Scripture says: *"As he thinketh in his heart, so is he."* (Proverbs 23:7)

God designed human beings not merely to receive information but to **reason, imagine, discern, create, and innovate.** If we let technology replace these functions rather than enhance them, we risk weakening capacities essential to human flourishing.

AI is a tool. It is not a substitute for the human mind. It is not a replacement for creativity. It is not a replacement for judgment. It is not a replacement for wisdom. That is why **AI must remain a tool, not a master.** Use it to automate repetitive tasks. Use it to increase productivity. Use it to accelerate research, analysis, and innovation. But never surrender your responsibility to **think critically, question carefully, learn rigorously, research diligently, read deeply, and create independently.**

Even the most sophisticated AI systems can make mistakes. They can hallucinate. They can provide inaccurate conclusions. They can reflect the limitations of the information upon which they were trained. Therefore, **human judgment, wisdom, discernment, and responsibility remain indispensable.** Mental muscles, like physical muscles, weaken when they are not exercised. The Apostle Paul urged believers to be transformed by the renewing of their minds (Romans 12:2). God intends for our minds to remain **active, disciplined, discerning, and productive.**

For the Church especially, there is an urgent need to raise a generation capable of **engaging the future without surrendering eternal truth.** We need young men and women who can stand at the **intersection of faith and innovation, conviction and creativity, spirituality and excellence.** The world is waiting for such people. Africa is waiting for such people. The Church is waiting for such people. Indeed, as the Apostle Paul declares: *"For the earnest expectation of the creature waiteth for the manifestation of the sons of God."* (Romans 8:19)

As I look upon this graduating class, **I am filled with hope.** The reason God brought you into our care was never simply so you could obtain certificates. It was never merely so you could make a living. You were brought here because **God intends you to make a difference, to lead, serve, build, serve and innovate.** You were brought here because **God intends you to become answers to the needs of this generation.**

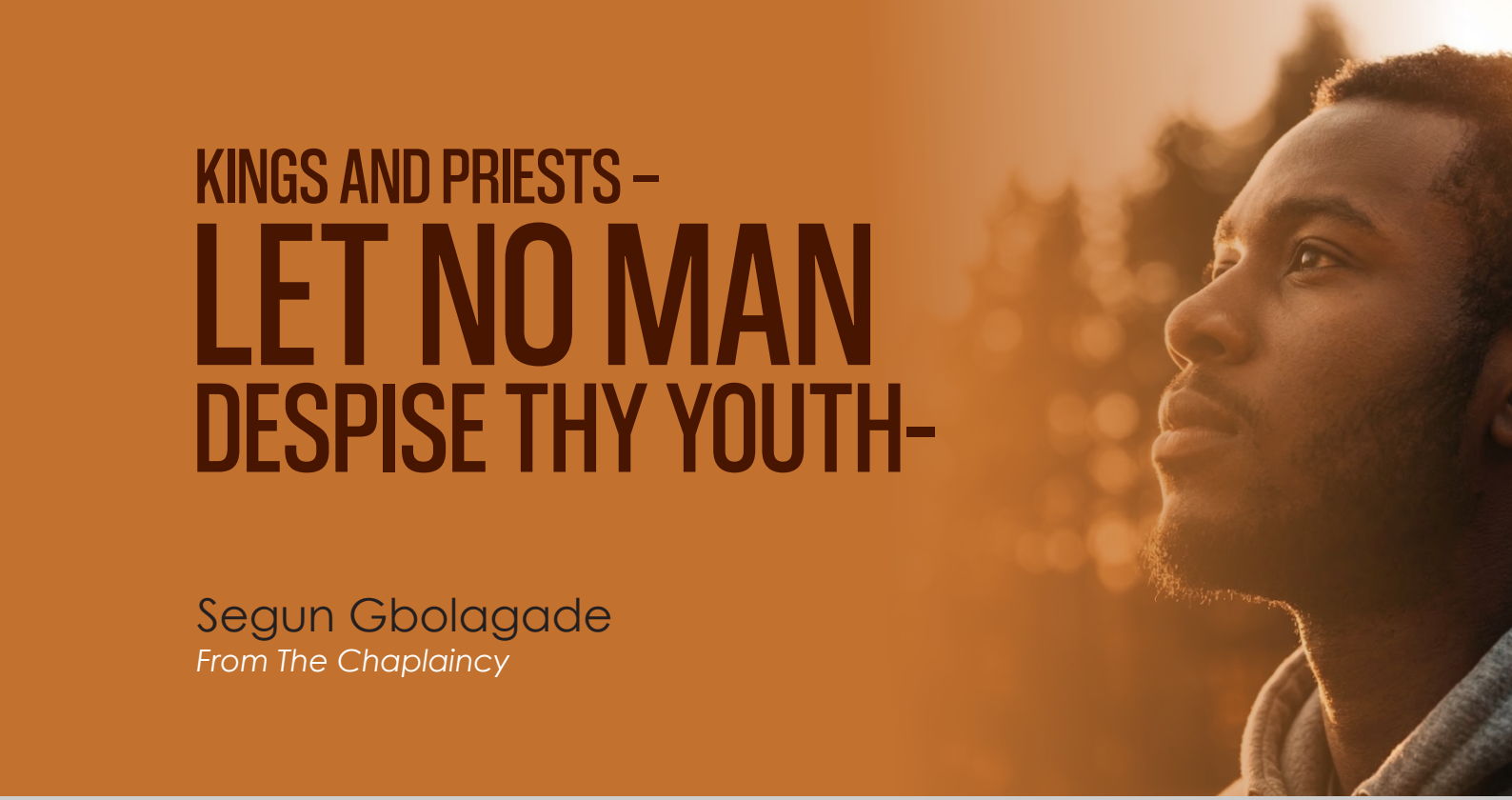
When God instructed us to establish and nurture this institution, it was with the hope that students such as yourselves would arise and become **instruments of transformation in your generation. You are our hope for today. You are our hope for tomorrow.** More importantly, **you are part of God's answer for the challenges of this age.** May you never fail to live up to that divine expectation! May you never become so consumed by the pursuit of material success that you forget **why you were born and, more importantly, why you were born again!**

Finally, remember this: **every great achievement begins with a first step.** Do not wait until you have everything figured out. **Start where you are. Start with what you have. Start with the knowledge you possess today. Start with the resources available to you now.** As you move forward, seize the opportunities before you. **Build. Create. Innovate. Explore. Learn and Lead!**

The future of technology, the future of Africa, and the future of many communities may depend upon young men and women, like you, who are willing to take **that first courageous step.** The future belongs to those who dare to begin. My prayer is that you and indeed this generation will **arise, seize its divine moment, and write a story that will inspire generations yet unborn.**

May you be among them! May God grant you **wisdom beyond your years, courage beyond your fears, and faith beyond your limitations!** May you have the **character to remain steadfast when others compromise, the vision to see opportunities where others see obstacles, and the determination to attempt great things for God.**

Go forth and shine as the Kings and Queens you have been raised to become! May the Kingdom of God be advanced through your **lives, your work, your innovations, and your service to humanity.**
For it is such a time as this; you have been prepared!
Engr D.S. Olufolaji
Director PRICE



KINGS AND PRIESTS –
LET NO MAN DESPISE THY YOUTH-

Segun Gbolagade
From The Chaplaincy

Let no man despise thy youth; but be thou an example of the believers, in word, in conversation, in charity, in spirit, in faith, in purity.
Till I come, give attendance to reading, to exhortation, to doctrine.
Neglect not the gift that is in thee, which was given thee by prophecy, with the laying on of the hands of the presbytery.
Meditate upon these things; give thyself wholly to them; that thy profiting may appear to all.
Take heed unto thyself, and unto the doctrine; continue in them: for in doing this thou shalt both save thyself, and them that hear thee. (1 Timothy 4:12–16)

To God be the glory; great things He has done.

It is amazing that the Lord has kept you as kings and priests throughout these twenty-four calendar months at the Peace House Research and Innovation Centre of Excellence (PRICE).

The Lord that brought you to Bethany Resorts has kept you, fed you, equipped you, upheld you, transformed your life and greatly impacted you both spiritually and professionally through our various visionary resource persons, both online and onsite. This is another landmark in the annals of the Centre. The two years of consistent and concerted training has been used by the Lord to raise men and women with a transformed life, great vision and clear direction for life and your walk with God, your professional career and your work in the field of innovation.

Kings and priests, the Lord has invested so much into your life, "Hold fast the form of sound words, which thou hast heard of me, in faith and love which is in Christ Jesus. That good thing which was committed unto thee keep by the Holy Ghost which dwelleth in us" -(2 Timothy. 1:13–14), As you embark on journey of life to do great exploit for the Lord in His kingdom in your journey of life, you must pay a close attention to this counsel as a gem in your heart.

"Let no man despise thy youth."

To despise means to dishonour, look down on, disregard, ignore, disdain, or scorn. Do not give room for anyone to despise your youth—your glory and your strength.

It is the room, place, or space you give to people to disregard your youth that they will occupy. Avoid every form of sinful action, inaction, and reaction that can bring reproach to the name of the Lord in your life. Yield to the counsel of the Lord, "Follow **peace with all men, and holiness, without which no man shall see the Lord: Looking diligently lest any man fail of the grace of God; lest any root of bitterness springing up trouble you, and thereby many be defiled; Lest there be any fornicator, or profane person, as Esau, who for one morsel of meat sold his birthright.For ye know how that afterward, when he would have inherited the blessing, he was rejected: for he found no place of repentance, though he sought it carefully with tears."**
Hebrews 12:14–17.

Give yourself to a life and conduct that will cause men to glorify Christ in you and esteem your youth. Follow peace with all

men, pursue holiness, and choose not to be like Esau, who despised his birthright for a morsel of meat. Put away bitterness and everything that causes men to fail and fall short of the grace of God.

Also, let no man despise the investment of God in your life at PRICE. Maximize every skill, talent, gift, and grace that the Lord has imparted and imputed into you. You are meant to be on the lampstand, not under a bushel, so that the light of Christ in you may shine before all men to the glory of the Father.

For men not to despise your youth, be an example to the believers wherever you are located per time. Be a model, a pattern and a prototype for others to see Christ in you through your word, conversation, conduct, love, manner of life and purity. In a world where corruption, laziness, sexual immorality, cyber crime, lies, pornography and the likes are the order of the day, you must stand out for Christ and appropriate the grace of God upon your life to deny every ungodliness and worldly lust and submit to the School of Grace to teach you how to live soberly, righteously and godly in this present world.

In addition ,give attention to reading of the Word of God, Christian literatures required for you to becoming like Jesus and relevant texts for your professional and career development. Remember that, "Readers are Leader". Also, be teachable to pay a rapt attention to exhortation, teaching and diligent study of both the Word of God and everything required for your research work and professional career. Study to show yourself approved unto God, a workman who does not need to be ashamed, rightly dividing the word of truth.

Do not neglect to put into use the potential and gifts of God in your life. All the research skills, research methodologies, project management, design, rototyping, simulation and the rest you have acquired at the Centre must translate from paper presentations into products.

Meditate on all the things you have been taught in discipleship, in the workshop and in the research laboratory. Give yourself wholly to them, so that your profiting and progress may appear to all men. You must realise that the creation is waiting earnestly and eagerly for your manifestation as the sons and daughters of God. May the Lord help you not to despise your youth, so that the creation will not wait in vain and disappointed in Jesus name

Furthermore, take heed to yourself and to the doctrine you have been taught. Living by faith must be your lifestyle as a new creation man. We believed the Lord and His word for our health, provision, projects, upkeep, journeys and every area of our lives together. None of His word to us failed nor fell to the ground without fulfilling the purpose for which the Lord sent them to us. Remember that,Borrowing was removed from your vocabulary; because the scripture made it clear to us that “The borrower is a servant to the lender” (Proverbs 22:7) and that," Without faith it is impossible to please God, for He is the rewarder of them that diligently seek Him.

For no man to despise your youth; You must walk by faith and not by sight, receiving counsel from the Lord for every step of your life, trusting in the Lord with all your heart, and leaning on His own understanding, when you acknowledge Him in all your ways, He will direct your path to the place of honour. As you acknowledge Him in all your ways through prayer, searching the Scriptures, seeking His counsel and following Him in discipleship, He is committed to directing your path into the purpose He had purposed and proposed for your life.

Continue in all that you have been taught, avoid distractions and distractors in your journey of life. Never choose the path of Demas, who departed from following the Lord in discipleship because of his love for the world. Remember, the scripture says:

Love not the world, neither the things that are in the world. If any man love the world, the love of the Father is not in him. For all that is in the world, the lust of the flesh, and the lust of the eyes, and the pride of life, is not of the Father, but is of the world. -- 1 John 2:15,16

As you pay attention to your personal walk with God, which was emphasised as the source of of inspiration for innovation and research breakthrough as well as living in obedience to all that you have been taught, you will save yourself and your youth from being despised by any man.

Finally, my brethren,for every man to honour your youth:Be strong in the Lord and in the power of His might. Put on the whole armour of God, that you may be able to stand against the wiles of the devil , Contend earnestly for the faith delivered unto you; Endeavouring to keep the unity of the Spirit in the bond of peace.

Remember that bad company corrupts good manners, and he who walks with the wise shall be wise, while a companion of fools shall perish. Choose godly friends, be in the right fellowship and do not forsake the assembly of the brethren. Keep company with the wise men who know the Lord and remain in fellowship with Christ and the brethren.

Our prayer is that the Lord will give you a lampstand on which to stand as kings and priests in our time: Therefore, be fruitful, multiply, replenish the earth, subdue it, exercise dominion, and connect men to the Lord through your life and professional career.

Let no man despise thy youth , exercise authority as kings and priests everywhere and anywhere men are found.



Bridging Town and Gown:

Rebuilding Education for Problem-Solving, Innovation and National Transformation

Babatunde Ojegbile (PhD),
Funsho Ogunshola (PhD) and Ebenezer Ojo (PhD)

Nigeria does not primarily suffer from a shortage of universities or tertiary institutions; it suffers from a shortage of graduates adequately equipped to solve the problems confronting the nation. It was recently reported that six out of ten Nigerian graduates are inadequately skilled to meet employers' requirements (**Alli, 2025**). The consequences are reflected in the labour market: while Nigeria's overall unemployment rate stood at 5.3% in early 2024, unemployment among those with post-secondary education stood at 9.0% (**Oluyi, 2026**). Consequently, possession of a degree in a technical, engineering or scientific discipline can no longer, in isolation, be regarded as sufficient evidence of readiness to create value. Across Africa, employers similarly report substantial gaps between graduate competencies and those required in workplaces increasingly shaped by technology, advanced production, data and innovation (**Tabane, 2025**). At the heart of this paradox is a persistent disconnect between the "gown" of academia and the "town" of industry and society: universities produce knowledge and graduates, while many societal problems remain disconnected from what is taught, investigated and rewarded within academic institutions.

In Nigeria, this divide is not abstract. Its consequences are visible in unemployed graduates alongside industries struggling to recruit appropriately skilled workers; failing potable-water systems despite nearby engineering faculties; persistent disease burdens despite generations of health scientists; and food insecurity in a nation richly endowed with agricultural resources. These contradictions compel a fundamental question: what is university-based academic training for? If it cannot progressively equip people to understand, interrogate and solve the problems around them, expanding access to formal education alone will not produce national transformation. Nigeria needs education deliberately connected to its realities, capable of helping the nation heal, build, feed, power, innovate and govern.

At the foundation of this challenge lies something deeper than curriculum content: the cognitive architecture of learning itself. Much of our educational experience continues to reward acquisition, retention and reproduction of information. These abilities have value, but they represent only part of the cognitive capacity required for meaningful problem-solving. Real-world problems rarely arrive as examination questions with clearly defined variables and predetermined answers. An engineer confronting an unreliable water system must determine why it is failing; a biomedical scientist investigating an unexplained disease pattern must formulate hypotheses, distinguish correlation from causation and interpret uncertain evidence; an agricultural scientist addressing declining productivity must integrate biology, climate, economics and technology.

Such tasks require moving beyond remembering and understanding to application, analysis, evaluation and creation. Knowledge becomes useful when learners can interrogate it, connect it to unfamiliar situations, challenge assumptions, synthesise evidence, generate alternatives and execute solutions. The distinction between knowledge and capacity is critical. Knowledge asks, "What do I know?" Capacity asks, "What can I do with what I know when confronted with a problem I have never seen before?" Universities may therefore graduate students with substantial theoretical knowledge but too few opportunities to think independently, make evidence-based decisions, design solutions or execute them. This creates an education-to-execution gap.

Closing this gap requires rethinking how learning is designed. Our educational system retains elements of an examination-centred model in which content is delivered first and its relevance to real problems considered later. Problem- and project-based learning invert this sequence. Rather than asking only, "What content must students cover?", the academy must also ask, "What problems should a graduate in this discipline be capable of solving?" Students then acquire and integrate knowledge because authentic problems demand it. Rigorous project-based learning requires students to define problems, identify knowledge gaps, evaluate evidence, formulate hypotheses, design and test solutions, revise assumptions and communicate findings. Evidence synthesised by Thomas (2000) supports its value in promoting meaningful engagement with knowledge while strengthening problem-solving and collaboration.

Yet critical thinking is not the final destination. A nation is not transformed merely because its graduates can identify what is wrong; they must be able to build what does not yet exist. Education must therefore connect critical thinking to innovation and execution. Innovation should not be reduced to competitions, attractive prototypes or occasional entrepreneurship programmes. It is the disciplined translation of knowledge into solutions that create measurable value through problem identification, experimentation, iteration, validation and implementation.

This process also changes how learners understand failure. A failed prototype can teach what a lecture alone cannot; an experiment that contradicts a hypothesis demands intellectual humility and analytical reasoning; an intervention that performs unexpectedly exposes the complexity of translating theory into practice. Through repeated engagement with such processes, students develop adaptive capacity: the ability to learn, think, collaborate, innovate and execute as new problems emerge. This is capacity building in its deeper sense.

Such transformation requires redefining the relationship between universities and the society they serve. Nigeria rightly celebrates the increasing visibility of its universities internationally. If twenty-four Nigerian universities are represented in the 2026 global rankings, that progress deserves recognition (**Omidiji, 2026**). Yet rankings cannot be the ultimate measure of relevance. A more difficult question is: how many of Nigeria's consequential problems are Nigerian universities being engaged and resourced to solve? If industries routinely seek technical solutions abroad, governments depend heavily on external expertise, and university discoveries rarely become products, policies or scalable interventions, the bridge between town and gown remains incomplete.

That relationship must become genuinely bidirectional. Industry should not encounter academia only when universities seek internships or funding; communities should not matter only when researchers require participants; and government should not engage researchers only after policies have been formulated. Problems arising from healthcare, agriculture, energy, technology, industry and communities should generate research questions within universities. In turn, university-generated knowledge needs deliberate pathways toward validation, translation, commercialisation, policy adoption and implementation. The town must help define the questions, while the gown brings disciplined inquiry to answering them.

Technical competence and innovative ability, however, are insufficient without integrity. A researcher who fabricates data, manipulates results, plagiarises work or sells academic credentials damages the central currency upon which science depends: trust! Research integrity is therefore integral to national development. When evidence cannot be trusted, policies become vulnerable, technologies may be unsafe, resources are wasted and society loses confidence in its knowledge-producing institutions (**Institute of Medicine, Committee on Assessing Integrity in Research Environments [CAIRE], 2002**). Nigeria needs researchers capable of asking difficult questions and refusing dishonest answers, innovators who understand that knowledge confers responsibility, and graduates whose competence is matched by character.

It is within this context that the pedagogical philosophy of the Peace House Research and Innovation Centre of Excellence (PRICE) becomes particularly relevant. PRICE does not begin merely with a syllabus and hope that its relevance becomes apparent someday. It begins with genuine problems arising from communities, industries, institutions and society, then constructs learning around the knowledge, analytical reasoning, technical competence and collaborative capacity required to investigate those problems and develop credible solutions. This is not an argument against foundational knowledge; meaningful innovation requires deep disciplinary understanding. The difference lies in what happens to that

knowledge: it must progress beyond recall through understanding, application, analysis and evaluation toward creation and execution.

A PRICE intern should therefore leave not merely knowing more, but able to do more with what is known. The intern should be able to confront an unfamiliar problem, define it precisely, interrogate evidence, identify knowledge gaps, formulate testable questions, acquire necessary skills, design an approach, analyse results, challenge conclusions, work across disciplines and translate findings toward implementation. The more enduring capacity is the ability to continue learning, thinking, adapting and solving problems when tomorrow's challenges differ from today's.

For PRICE, however, even this vision remains incomplete without character grounded in Christ. The Centre seeks to address interconnected deficits: competence without character, curricula without problems to answer, and character without Christ. Christ is not an ornament added to intellectual excellence but its ultimate foundation: "He is the first principle and the upholding principle of all things" (**Colossians 1:17**). This conviction should produce researchers deeply committed to truth because truth matters before God. Researchers who pursue excellence as stewardship, innovators who understand that knowledge must serve rather than exploit, and leaders whose ambition is governed by responsibility. PRICE therefore seeks to raise innovators who combine rigorous thinking, technical competence, creative problem-solving, disciplined execution and uncompromising integrity while being wholly yielded to God.

To every member of the Kings and Queens Set 4 PRICE interns graduating this year, this is bigger than defending a project or adding another line to a curriculum vitae. You have been trained to stand in the gap between town and gown. Let the real problems of Nigeria, and indeed Africa, provoke your questions. Do not begin with a familiar technique and search for a problem to which it can be applied. Begin with the problem. Understand it deeply. Ask the right questions. Then acquire whatever knowledge and skills are necessary to solve it.

Do not stop at identifying problems. Build, test, fail intelligently, learn, refine, validate and execute. Let your data stand because they are true, not because no one checked them. Let your conclusions follow the evidence even when it contradicts what you hoped to find. Let your projects begin with genuine problems and move toward genuine solutions rather than becoming reports destined for shelves. Never allow competence to outrun character.

Go into laboratories, universities, industries, communities, hospitals, farms, technology companies and public institutions knowing that knowledge is a responsibility. Fear the Lord above deadlines, publications, grants, promotions and bribes. Pursue excellence without sacrificing integrity. Let it be said of you, as it was of Daniel, that those who sought grounds for accusation "could find no corruption in him, because he was trustworthy and neither corrupt nor negligent" (**Daniel 6:4**).

Nigeria does not merely need more graduates. It needs problem-solvers who can think, innovators who can execute, researchers whose evidence can be trusted, and leaders whose knowledge is directed toward service. When education develops the cognitive capacity to interrogate real problems, moves learning from knowledge acquisition toward critical thinking, innovation and execution, reconnects town and gown, and anchors competence in character, universities become more than institutions that award degrees. They become engines for solving Nigeria's problems and transforming the nation.

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A Journey of Transformation

As we stand at this significant threshold of our graduation from the Peace House Research and Innovation Centre for Excellence (PRICE), our hearts are filled with profound gratitude. We return all glory to God Almighty, the Author and the Finisher of our faith, for the privilege of passing through this hallowed institution. Our time here has been far more than a vocational experience; it has been a divine orchestration of growth, character refinement and spiritual maturity.

Our journey at Peace House Research and Innovation Centre of Excellence (PRICE) has been defined by a holistic approach to development that transcends conventional learning, modelling a school of life. We did not come merely to acquire technical and intellectual proficiency; we came to be reshaped, refined, refocused and reformed in our journey of life.Through the diverse platforms provided by the Peace House – including Discipleship training, Life Seminars, Floor Groups, the Jesus Global Revolution (JEGRUN), and insightful book reviews – our spirits have been nourished, strengthen and revived.

The communal life we experienced, from the vibrant energy of Variety Nights and sports to the quiet, introspective moments of "Alone with God", has been a crucible for character. Even the shared responsibility of the kitchen taught us the vital lessons of teamwork, tolerance, forgiveness, and the beauty of unity amidst our individual diversities and differences. We have learned that genuine growth is rarely a solitary endeavour; it is a collective commitment to relating with one another by engaging the grace of Christ.

Furthermore, we must acknowledge a significant transformation in our discipline. We entered this institute with restlessness, struggling to remain focused for extended periods. Through the grace of God and the patient, consistent guidance the environment provided, we have learned the power of stillness and sustained attention. This foundational change has been instrumental in our ability to absorb the deep truths and technical knowledge shared throughout our stay in PRICE.

As interns who took the learning path of the ICT research stream, we are particularly grateful for the environment that fostered our professional growth. The free internet access and the wealth of resources made available to us significantly accelerated our learning curve. We have grown from novices to confident practitioners, refining our technical skills in an atmosphere that encourages innovation and excellence. We have seen firsthand how professional proficiency, when aligned with spiritual integrity, becomes a powerful tool for the advancement of the kingdom of God.

We'll be graduating from PRICE deeply indebted to the Lord Jesus Christ and His body. We have been the beneficiaries of an incomparable and undeniable holistic training, which we have come to recognise as the "3H" mandate: Head, Heart and Hand. Our *heads* have been challenged intellectually to keep acquiring depth of knowledge that has expanded our worldview and equipped us to navigate the complexities of the modern world. Our *hearts* have experienced the divine exchange, the removal of the natural life of the flesh we came with and the implantation of a new heart – the very heart of Jesus! This transformation of character is the foundation upon which all our other skills now rest and stands as a bridge for us to be a blessing to humanity. Our *hands* have handled what goes beyond theory; we have mastered diverse skills that provide us with a firm ground to stand upon as we venture into the marketplace. We are now equipped, both spiritually and professionally, to manifest the Kingdom of God in our tech space.

The Lord graciously gave us lecturers and teachers who laboured on our lives, both online and on-site, as guides by whose lives we can see clearly. Your sacrifices have not gone unnoticed by God. We pray that the Lord will continue to bless and strengthen you and the leadership of the Peace House. May your labour of love continue to yield fruit that remains, in Jesus' name. Amen!

As we transition from this training ground to the marketplace, we go with a singular mission: to bring in the harvest of souls for the kingdom of God by engaging Christ in the world of ICT. We have been trained not just to work, but to witness. We have learned practically that it is as Christ in us, interacting with professional spaces, and our daily conduct are our greatest tools and message for evangelising lives.

We stand ready, by His grace, to be good soldiers of the Cross. We do not fear the challenges of the world; rather, we are emboldened by the truth we have received. We covet your prayers as we step out, that we would remain steadfast and always abound in the Lord, as we keep walking in the integrity of the heart and boldly standing for Jesus in our professional endeavour.

Indeed, we have been transformed. Our mandate is now clear, our hearts are prepared, and the knowledge in our heads is ready to serve a divine purpose. We have not merely gathered information; we have been equipped for impact and transformation. And now, with willing hearts and prepared hands, we step forward to embrace the work that lies ahead, ready to turn what we have learned into purposeful action for the glory of God.

Maranatha

Manasseh Danbeki, Oshomah A. Paul, Oke Okerefe, and Babatunde Ayorinde
PRICE Interns,
ICT Research Stream.



From Convenience to Contamination:

The Hidden Threat of Microplastics

God took the Man and set him down in the Garden of Eden to work the ground and keep it in order. *Genesis 2:15 (MSG)*

What appears to be a simple instruction carries a profound responsibility. The Man was entrusted with the care and orderly management of creation. Yet, as a consequence of the Fall *(Genesis 3:1–24 [KJV])*, many innovations designed for convenience and progress have also produced unintended environmental challenges. The growing problem of microplastic pollution serves as a reminder that when stewardship is neglected, the pursuit of convenience can lead to contamination, threatening the very world we were called to nurture and preserve.

We often associate pollution with visible waste – plastic bags floating in rivers, discarded bottles on beaches, and overflowing landfills. Yet some of the most concerning pollutants are too small to be seen with the naked eye. Microplastics, plastic particles smaller than 5 mm and larger than 1µm, along with nano plastics (in the 1–1000 nm range), are ubiquitous environmental contaminants originating from both primary production and secondary fragmentation (Eberhard et al., 2024; Chen *et al.*, 2024). These tiny plastic fragments have infiltrated our oceans, rivers, soils, food, and even the air we breathe (Chanda *et al*., 2024). The Swiss Federal Office for the Environment commissioned a report from the Documentation Centre for Air and Health, a literature database and information service on the health effects of ambient air pollution at the Swiss Tropical and Public Health Institute, to summarize the current state of knowledge on the health effects of microplastics in ambient air. The commissioning this report reflects the growing scientific concern surrounding the environmental and potential health implications of plastic pollution, particularly as plastic materials undergo degradation and generate smaller particles that can persist in the environment and become airborne (Eberhard *et al*., 2024; World Health Organization [WHO], 2022).

Plastic is one of the most remarkable inventions of the modern era, owing to its durability, versatility, lightweight nature, and relatively low cost, which have contributed to its widespread application in packaging, healthcare, transportation, construction, and numerous consumer products (Geyer *et al*., 2017; Xiao *et al*., 2020; WHO, 2022). However, the same durability that makes plastics economically and technologically valuable also contributes to their persistence in the environment, where they can accumulate and undergo physical and chemical degradation into progressively smaller particles (Xiao et al., 2020; Luo *et al.,* 2024). While visible plastic waste such as bottles, bags, and food containers often attracts public attention, a less conspicuous but increasingly recognized component of plastic pollution is microplastics, typically defined as plastic particles smaller than 5 mm (Hartmann et al., 2019; López *et al*., 2023).

Microplastics are plastic particles smaller than 5 mm in diameter. They originate from a variety of sources and are

generally classified into primary and secondary microplastics (Tirkey & Upadhyay, 2021). *Primary microplastics* are tiny plastic particles that are manufactured intentionally in small sizes, including microbeads used in cosmetics, scrubbing agents in cleaning products, and plastic pellets used as raw materials in the plastics industry (Sharma *et al*., 2021; United Nations Environment Programme [UNEP], 2023). These particles commonly enter water bodies directly through wastewater discharge or accidental spills.

Secondary microplastics are formed when larger plastic items break down into smaller pieces due to sunlight, waves, or physical wear. For example, plastic bags, bottles, fishing nets, and packaging materials degrade over time and release fragments into rivers, lakes, and oceans. Thus, secondary sources are the most widespread and contribute significantly to microplastic pollution (Kumar *et al*., 2023). Unlike natural materials that decompose relatively quickly, plastics break down very slowly. Instead of completely degrading, they fragment into progressively smaller particles that can remain in the environment for decades or even centuries (Luo *et al*., 2024; Andrady, 2022).
Industrial sources of microplastics include wastewater from textile factories, plastic manufacturing plants, and tyre wear from vehicles that get washed into drains and rivers (Hu *et al*., 2024; Kole *et al*., 2022). Certain tablets, capsules, and controlled-release drugs use polymeric excipients or coatings (e.g. polyethylene glycol, polymethacrylates, or other synthetic polymers) that could degrade into microplastics in the environment. Domestic sources include synthetic fibres shed from clothes during washing, microbeads from personal care products, and fragments from household plastics. When wastewater treatment plants cannot fully remove these particles, they end up in natural water bodies (Wang *et al*., 2022).

Chemistry lies at the heart of both the problem and the solution. Most plastics are made from synthetic polymers such as polyethylene, polypropylene, polystyrene, and polyethylene terephthalate (PET), which are highly resistant to natural degradation (Andrady, 2022; Luo *et al*., 2024). These materials consist of long chains of molecules designed to resist degradation and withstand environmental stress (Gewert *et al*., 2019 *)*. As a result, plastics persist in the environment and gradually fragment into smaller particles.
While this durability is advantageous during use, it becomes problematic after disposal. Natural microorganisms often struggle to break down synthetic polymers efficiently (Chamas *et al*., 2020; Wei & Zimmermann, 2022). Consequently, plastics persist in ecosystems for extended periods.
Furthermore, plastics frequently contain additives such as plasticisers, stabilisers, flame retardants, and colourants (Hahladakis *et al*., 2019*)*. Over time, some of these chemicals may leach into the surrounding environment, raising additional environmental concerns.
Microplastics can also act like sponges, adsorbing pollutants such as pesticides, heavy metals, and persistent organic contaminants from water (Li *et al*., 2022). This ability allows them to transport harmful substances through ecosystems and potentially into food chains.

Microplastic pollution has become a global environmental issue. Marine ecosystems are particularly vulnerable because large quantities of plastic waste ultimately reach oceans and coastal waters (Borrelle *et al.,* 2020). Many aquatic organisms, including plankton, shellfish, fish, and seabirds, mistakenly ingest microplastics. Because these particles resemble food, they can accumulate within digestive systems, causing physical harm, reduced feeding efficiency, and impaired growth (Bucci *et al*., 2019; Kögel *et al*., 2020).

Microplastics have also been detected in freshwater environments, agricultural soils, and even remote regions far from major human settlements (Bank & Hansson, 2019). Their widespread distribution demonstrates how easily these particles can be transported by wind, water currents, and human activities. In agricultural systems, microplastics may alter soil structure, affect water retention, and influence the activity of beneficial soil organisms (Rillig *et al*., 2021). Since healthy soils are essential for food production, the presence of microplastics raises concerns about long-term agricultural sustainability.

The potential effects of microplastics on human health remain an active area of scientific research. Studies have detected microplastics in drinking water, seafood, table salt, fruits, vegetables, and other food products (WHO, 2022; Cox *et al*., 2019). More recently, Lesli *et. al.* (2022) has identified microplastic particles in human blood, lungs, and other tissues, highlighting the extent of human exposure. Although the long-term health effects are still being investigated, concerns exist regarding both the physical presence of microplastics and the chemistry associated with them.
Some additives used in plastic manufacturing may interfere with biological processes, while contaminants attached to microplastic surfaces may introduce additional risks. Beyond potential health concerns, microplastics threaten biodiversity, disrupt ecosystems, and contribute to the growing burden of environmental pollution (Hong & Kim, 2024; Kögel *et al*., 2020).

Reducing microplastic pollution requires collective action from individuals, industries, governments, and the scientific community. Consumers can contribute by reducing reliance on single-use plastics, choosing reusable products, recycling

properly, and supporting environmentally responsible practices. Industries can invest in sustainable packaging, improve waste management systems, and develop innovative materials with reduced environmental impact. Governments play a crucial role through policies that encourage responsible production, waste reduction, and environmental protection. Educational campaigns can also raise awareness about the sources and consequences of plastic pollution.
Chemists and materials scientists are actively developing biodegradable polymers, advanced recycling technologies, and environmentally friendly alternatives to conventional plastics (UNEP, 2023). Such innovations may help reduce the accumulation of persistent plastic materials in the future.

Microplastics may be nearly invisible, but their impact on the environment is becoming increasingly difficult to ignore. These tiny particles have infiltrated ecosystems across the globe, reaching oceans, rivers, soils, food supplies, and even the human body. Their persistence, widespread distribution, and potential environmental and health implications make them one of the most pressing pollution challenges of our time.

Addressing the microplastic crisis will require scientific innovation, effective policies, responsible industrial practices, and informed public participation. By understanding the chemistry behind microplastics and taking proactive measures to reduce plastic pollution, society can move toward a cleaner, healthier, and more sustainable future. The challenge is immense, but so is the opportunity. Through collective effort and scientific advancement, the invisible threat of microplastics can be transformed into a visible call for environmental responsibility and sustainable living.

In all, the story of microplastics is ultimately a story of choices. What began as convenience has become contamination, quietly infiltrating our water, food, soil, and the very systems that sustain life. The challenge before us is no longer simply to understand the problem, but to change the habits, systems, and policies that allow it to persist. Every piece of plastic we refuse, reuse, or responsibly dispose of is a step toward a cleaner environment. The time to move from convenience to responsibility is now, before what we cannot see becomes what we can no longer control.
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References





More Than Machines:

Mechatronics in God's Grand Design

The Relevance of Mechatronics in the Grand Scheme of Things as Christians and as Professionals

"But there is a spirit in man: and the inspiration of the Almighty giveth them understanding." Job 32:8 (KJV)

We are living in an age where intelligent machines are reshaping the world at an unprecedented pace. Artificial Intelligence is transforming healthcare, robotics is redefining manufacturing, autonomous systems are changing transportation, and smart technologies are influencing almost every sphere of human life. At the heart of many of these advancements lies *Mechatronics Engineering* – the seamless integration of mechanical engineering, electronics, computing, control systems, and intelligent automation. Yet, for the Christian, Mechatronics is far more than the study of machines. It is the study of how God-given wisdom can be harnessed to serve humanity, exercise faithful stewardship, and reflect the Creator's ingenuity in a world longing for solutions.

Everything begins with God, who created and designed the universe with breathtaking precision and order. From the intricate structure of DNA to the predictable motion of galaxies, the entire creation reveals intelligence, purpose, and harmony. Humanity, created in the image of this infinitely wise God, was entrusted with the mandate to "fill the earth and subdue it" (Genesis 1:28). This command was never a license for exploitation but a call to responsible stewardship – to discover, cultivate, improve, and preserve God's creation for His glory and the good of others. Every scientific breakthrough, every engineering innovation, and every life-transforming invention finds its highest meaning when it participates in this divine assignment.

It is therefore no coincidence that Scripture declares, "*There is a spirit in man: and the inspiration of the Almighty giveth them understanding*" (Job 32:8, KJV). Human creativity is not merely the product of intellect; it is also a gift from the God who imparts understanding. The Christian engineer approaches research with diligence, but also with humility, recognising that every genuine insight is made possible because the living God has fashioned humanity with the capacity to think, imagine, discover, and create. Hence, prayer and research are not rivals; they are companions. Faith does not replace rigorous inquiry; it gives it purpose!

History bears remarkable testimony to this truth. Some of the greatest pioneers of science understood their work as an act of worship. Isaac Newton, whose laws of motion and universal gravitation transformed physics, believed that studying nature revealed the wisdom of its Creator. Johannes Kepler described himself as "thinking God's thoughts after Him" as he uncovered the mathematical order governing the planetary bodies. Michael Faraday, whose discoveries in electromagnetism laid the foundation for modern electric motors and generators, lived with extraordinary humility shaped by his Christian convictions. James Clerk Maxwell, whose equations underpin modern electronics, saw no contradiction between scientific excellence and unwavering

faith. George Washington Carver, celebrated for his agricultural innovations, often testified that he sought God's guidance in understanding the mysteries of nature so that his discoveries might alleviate poverty and improve lives. Their legacy reminds us that faith has not hindered scientific progress; rather, it has often inspired the pursuit of truth, excellence, and service.

This legacy will continue to find renewed relevance in the field of Mechatronics. Every intelligent prosthetic limb that restores mobility, every automated agricultural system that improves food security, every medical robot that assists surgeons, every embedded system that enhances safety, every autonomous rescue device deployed in disaster zones, and every intelligent solution that addresses pressing human challenges all reflect the enormous potential of Mechatronics to become a channel of compassion. Thus, *technology, when guided by wisdom and governed by love, becomes more than innovation but ministry in action.*

As professionals, the calling of the mechatronics engineer extends far beyond technical competence. The world is already producing brilliant minds capable of designing faster processors, smarter algorithms, and more sophisticated robots. What it desperately needs are professionals whose character is as refined as their skills. The Christian professional must therefore pursue excellence without pride, innovation without compromising ethics, ambition without losing compassion, and success without sacrificing integrity. In an era where Artificial Intelligence raises profound ethical questions, where automation reshapes economies, and where technological power grows faster than moral reflection, the Christian engineer has the privilege and responsibility of demonstrating that wisdom must always govern knowledge.

Professional excellence itself is a form of stewardship. Every circuit designed with precision, every line of code written with integrity, every experiment conducted honestly, every research paper published responsibly, and every product developed for the benefit of society becomes an offering to God when done wholeheartedly. As the Apostle Paul exhorts, "*And whatsoever ye do, do it heartily, as to the Lord, and not unto men*" (Colossians 3:23). The laboratory, the workshop, the classroom, and the innovation hub can become places where worship is expressed not only through words, but through faithful and excellent works.

This vision is what we have found to be inculcated into our training at the Peace House Research and Innovation Centre for Excellence (PRICE). In a world that often separates spiritual formation from scientific advancement, PRICE stands as a compelling reminder that the two belong together. It is raising a generation of researchers, innovators and professionals who understand that technology divorced from character can become dangerous, but technology guided by Christ can become transformative. It is nurturing intellectually rigorous minds, spiritually grounded, ethically responsible, and passionately committed to solving real problems affecting communities, nations, and the world.

Ultimately, Mechatronics is not about machines; it is about people. It is not merely about automation; it is about stewardship. It is not simply about creating intelligent systems; it is about applying God-given understanding to improve lives and glorify the One from whom all wisdom flows. The Christian mechatronics professional is therefore called to be more than an engineer. He or she is called to be a faithful steward of knowledge, a servant of humanity, a person of integrity in a rapidly changing technological age, and a witness that faith and scientific excellence are not opposing paths but harmonious expressions of the same divine purpose.

As we graduate to become the Innovators, our critical takeaway is that every invention begins with an idea, every breakthrough begins with curiosity, and every enduring contribution begins with wisdom inspired by God. For when Mechatronics is pursued with excellence, anchored in truth, and motivated by love, it becomes more than machines but a powerful instrument through which God's wisdom can touch the world.

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ADVANCING AQUACULTURE: AQUAPONICS AS A CATALYST FOR SUSTAINABLE SOCIO-ECONOMIC DEVELOPMENT FOR RESEARCH AND INNOVATION IN AFRICA

Being a Convocation Lecture presented by

PROFESSOR PIUS MBU OBEN

At the Graduation Ceremony of the
Peace House Research and Innovation Centre of Excellence (PRICE),
Gboko, Benue State, Nigeria.

STUDY 1: ADVANCING AQUACULTURE 1: INTEGRATED FISH FARMING AT THE UNIVERSITY OF BUEA, CAMEROON-CASE STUDY

INTRODUCTION

Aquaculture is an aspect of Agriculture and represents the greatest growth of all food production systems in the last two decades, right up to the present time (Pedini and Shehade, 1997). World Aquaculture has been growing at a rapid pace and is indeed the fastest-growing food industry, with a growth of 10% per annum. Fish provides more than 20% of the average per capita animal protein intake for 3 billion people and more than 50% in some less developed countries (FAO, 2018).

A major reason for fish inadequacy in developing countries is the high cost of procuring fish feed in aquaculture (Oben and Oben, 2003; Adewumi *et al.*, 2011). This has highlighted the need for cheaper and more sustainable means of feeding fish in aquaculture (Sotolu, 2010). One such means currently receiving attention in Africa is wetland integrated aquaculture (IA) (Oben *et al.,* 2015), a farming system that combines two or more normally separate agricultural enterprises, of which at least one is aquaculture, with the wastes or by-products of one enterprise recycled into the other(s) as inputs (Brummett, 1999). Fish-rice farming (FRF) is a form of IA that involves the concurrent or rotational growing of fish and rice on the same plot of ground or in different compartments using the same water, with the rice plots constituting wetlands (Halwart and Gupta, 2004). Apart from such benefits as improved land use, increased rice production, better diets for the farmer, the spreading of biological and economic risks, higher income than stand-alone fishponds and improved cash flow, FRF has also given higher fish production than separate earthen pond aquaculture (FAO, 2013b), the system most practised in Cameroon (Nguenga *et al.*, 2000). Wetland fish-rice farming could therefore be relevant in providing the protein needs of Cameroonians through increased fish production.

Capture-based aquaculture and rice monoculture have been reported in some wetlands in Cameroon (Pouomogne and Brummett, 2008; Fonge *et al.,* 2013; Bangsi, 2014). However, these have not operated in integration with each other, but as separate enterprises. Literature on wetland fish-rice farming in the country is either scanty. The aim of this study, therefore, was to investigate the growth dynamics of fish grown in an aquatic ecosystem (wetland) in integration with paddy rice in comparison with fish grown in earthen ponds in Cameroon.

Research was undertaken in the three-hectare wetland of the West and Central African Council for Agricultural

Research and Development (CORAF/WECARD) adaptive research integrated fish cum rice cum pig and poultry farm on the campus of the University of Buea (UB) in Fako Division of the South West Region of Cameroon, located at Longitude 009˚ 17 07.85 ˝ E and Latitude 04˚ 08 44.65˝ N, at 557 m above sea level. In the rainy season, from June to November (in some instances, August to January), nearly all of the depression is flooded to up to 0.8 - >1.0 m, constituting a lake which teems with large numbers of waterfowls, amphibians (frogs, toads and tadpoles), reptiles, earthworms and insects, as well as a large biomass of emergent, submergent and floating macrophytes. The wetland is dry during the rest of the year. Two earthen ponds (Fish Pond 1 and Fish Pond 2, each 195 m^2 in area and 2 m deep) with high dykes and two adjacent rice plots (Rice Plot 1 and Rice Plot 2, each enclosed with nylon netting of very fine mesh size and 1.5m high) within the wetland were used in the study. A covering consisting of fish net was placed over each pond to preclude predators. A peripheral trench (Rasowo and Auma, 2006) 40 m long, 1 m wide and 1.5 m deep was dug near one edge of each rice plot to serve as refuge for the fish.

Fish Pond 1 and Rice Plot 1 constituted part of the "Sustainable integrated pond-based aquaculture with rice and poultry production: Economic, Social and Environmental Assessment Project (SIARP-ESEA)", while Fish Pond 2 and Rice Plot 2 were part of the "Poverty Eradication and Grassroots Empowerment through Sustainable Integrated Aquaculture Development: Fish cum Rice and Pig production Project (SIAD-RP)."

MATERIALS AND METHODS

Stocking, Feeding and Sampling of Fish

Clarias gariepinus fingerlings (initial mean total length 6.901 ± 0.176 cm and initial mean weight 2.86 ± 0.02 g were stocked at an average density of 5000 fingerlings/ha in each fish pond and rice plot (Halwart and Gupta, 2004). The fish were fed a diet with 32% crude protein adapted from Zeinhom *et al.* (2010) once daily (Pengseng, 2013) at 5% body weight (Orire and Fawole, 2012), while those in the rice plots were cultured extensively. Hook and line, seine net and basket trap were used to randomly sample at least 17 fish from each culture unit for length and weight, weekly. Growth parameters derived include mean weight gain (MWG), average daily growth rate (ADGR), specific growth rate (SGR) and condition factor (K).

Physico-chemical Water Quality Monitoring

In situ weekly measurements were made of water temperature, pH, dissolved oxygen, electrical conductivity, phosphate and nitrate contents, and total dissolved solids.

Statistical Analyses

Data were screened for normality and homogeneity of variance using the Kolmogorov-Smirnov test. The two-sample t-test was used to compare the means of fish weight gain in the fishponds and in the rice fields. Comparisons across the fish culture sites were made using ANOVA and individual means separated by the Tukey HSD test. **Polynomial regression models** were used for predicting the trends in fish weight and time.

RESULTS AND DISCUSSION

Apart from low mean dissolved oxygen values in Rice Plot 1 (3.14±1.19 mg/L) and Rice Plot 2 (2.18±0.23 mg/L), values for the physico-chemical water quality parameters that were monitored were within recommended ranges for *C. gariepinus* growth in all the four culture sites.

The mean weight gain (MWG), average daily growth rate (ADGR), specific growth rate (SGR) and condition factor (K) were significantly higher ($P<0.01$) in the wetland rice plots than in the fish ponds (Table 1). Mean fish weight gain according to type of culture facility is shown in Figure 1. The variation in fish growth performance

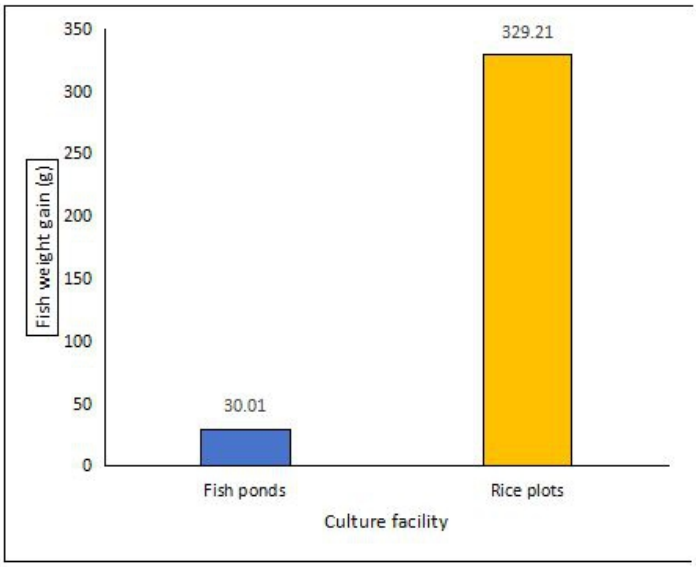


Figure 1. Mean fish weight gain in pond and rice field culture in the CORAF/WECARD wetland at the University of Buea.

between wetland rice plots and the fish ponds could be attributed to differences in the availability of food. While the ponds received feed once daily and their net coverings prevented wetland fauna from entering the ponds, fish in the rice plots had unrestricted access to the abundant biodiversity found in the wetland. C. *gariepinus* can feed both day and night, allowing fish in the rice plots to forage at any time, potentially feeding more than fish in the ponds and growing faster.

Table 1. Mean values of initial and final total length and weight, weight gain, average daily growth rate, specific growth rate and condition factor of *C. gariepinus* in the fish culture facilities from September to November, 2014.

Parameter	Fish Pond 1 (N=17) Mean±SE	Fish Pond 2 (N=17) Mean±SE	Rice Plot 1 (N=17) Mean±SE	Rice Plot 2 (N=17) Mean±SE	ANOVA
Initial total length (cm)	6.90 ± 0.40^{a}	6.90 ± 0.40^{a}	6.90 ± 0.28^{a}	6.88 ± 0.36^{a}	P>0.05
Final total length (cm)	16.30 ± 0.98^{a}	17.50 ± 0.99^{a}	34.50 ± 1.02^{b}	29.40 ± 2.02^{c}	P<0.05
Initial mean weight (g)	2.85 ± 0.05^{a}	2.85 ± 0.05^{a}	2.85 ± 0.06^{a}	2.87 ± 0.06^{a}	P>0.05
Final mean weight (g)	30.90 ± 1.93^{a}	34.81 ± 3.85^{b}	343.80 ± 41.38^{c}	320.31 ± 47.53^{d}	P<0.01
Mean weight gain (g)	28.05 ± 1.88^{a}	31.96 ± 3.79^{b}	340.95 ± 41.32^{c}	317.46 ± 47.47^{d}	P<0.01
Average daily growth rate (g/day)	0.29 ± 0.02^{a}	0.30 ± 0.04^{a}	3.48 ± 0.12^{b}	2.99 ± 0.45^{c}	P<0.01
Specific growth rate (%)	2.81^{a}	2.98^{a}	5.84^{b}	5.61^{b}	P<0.01
Condition factor (K)	0.71^{a}	0.65^{b}	0.87^{c}	1.26^{d}	P<0.01

^{a,b,c,d} Tukey: Values on the same row with the same superscript are not significantly different (P>0.05).

The results show that there was either no significant difference among the culture sites or all the culture sites were within tolerable limits in water temperature, pH, electrical conductivity, total dissolved solids, phosphate

and nitrate content. The results on the fish length (cm) against time (weeks) in pond 2 **(Figure 2),** showed that there is a 91.1% agreement in the polynomial (ply.) fit representation of the data but after that it fluctuates. Overall, it is a good fit. The model equation is a polynomial of degree four. In the plot, x stands for time in weeks while y represents length of fish in centimetres (cm). **Figure 3** shows 83.6% fit of the variation of weight in grams (g) of fish with time (in weeks). There is 83.6 % agreement in the polynomial (ply.) fit representation of the data.

Figure. 4 shows 65.8 % fit of the variation of dissolved oxygen with temperature (0C). There is 65.8 % agreement in the polynomial fit representation of the data. The model equation is a polynomial of degree six. In the plot, x stands for temperature while y represents dissolved oxygen.

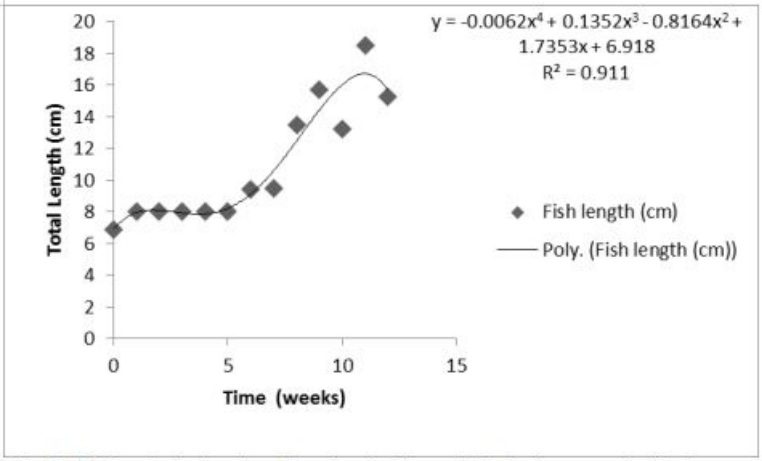


Fig. 2: Fish length (cm) against Time (weeks) in pond 2 adaptive research fish farm University of Buea, Cameroon

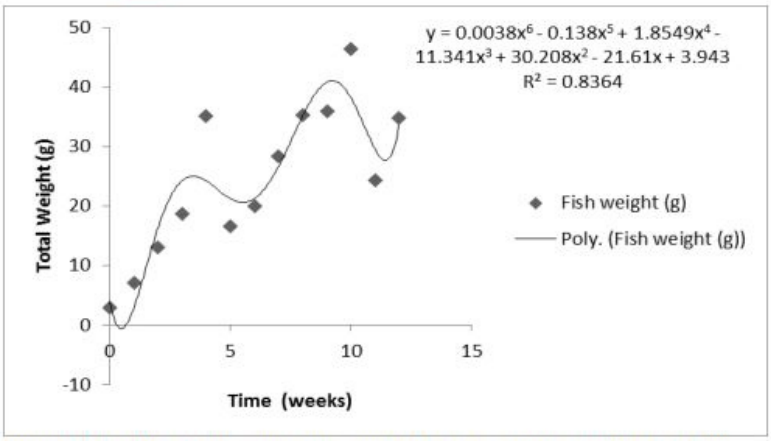


Fig 3: Fish total weight (g) against Time (weeks) in pond 2 adaptive research fish farm, University of Buea, Cameroon

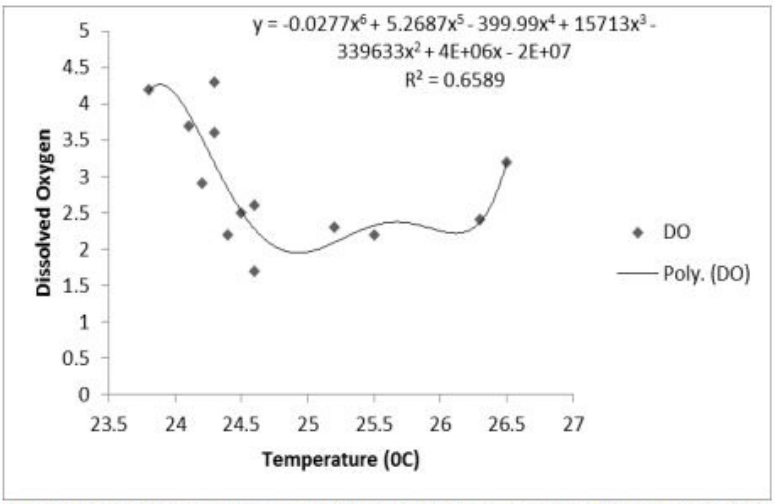


Fig. 4: Temperature against dissolved oxygen in the wetland rice plot 1 (SIARP ESEA Project), University of Buea, Cameroon.

Figure 5 shows a 99.7 percent fit of the variation of fish weight in grams (g) with time (weeks). The results show perfect agreement between the fit and data fitted. That is a true representation of the data. There is 99.7 percent agreement in the polynomial (ply.) fit representation of the data. Overall, it is a good fit. The model equation is a polynomial of degree five. In the plot, x stands for time in weeks while y represents the weight of fish in grams (g). In Figure 6, the results indicates 84.1 percent fit of the variation of the weight in grams (g) of fish with time (weeks) in the rice field plot 2 (SIAD-RP Project, University of Buea, Cameroon). There is 84.1 percent agreement in the polynomial (ply.) fit representation of the data. Overall, it is a good fit. The model equation is a polynomial of degree six. In the plot, x stands for time in weeks while y represents weights of fish in grams (g).

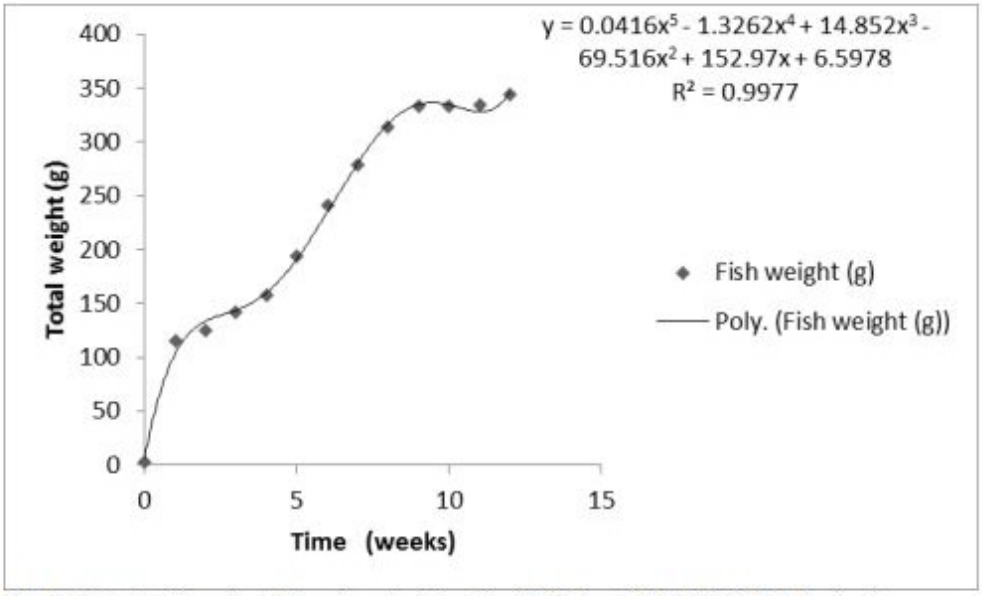


Fig 5: Weight (g) against Time (weeks) for rice field plot 1(SIARP-ESEA Project)

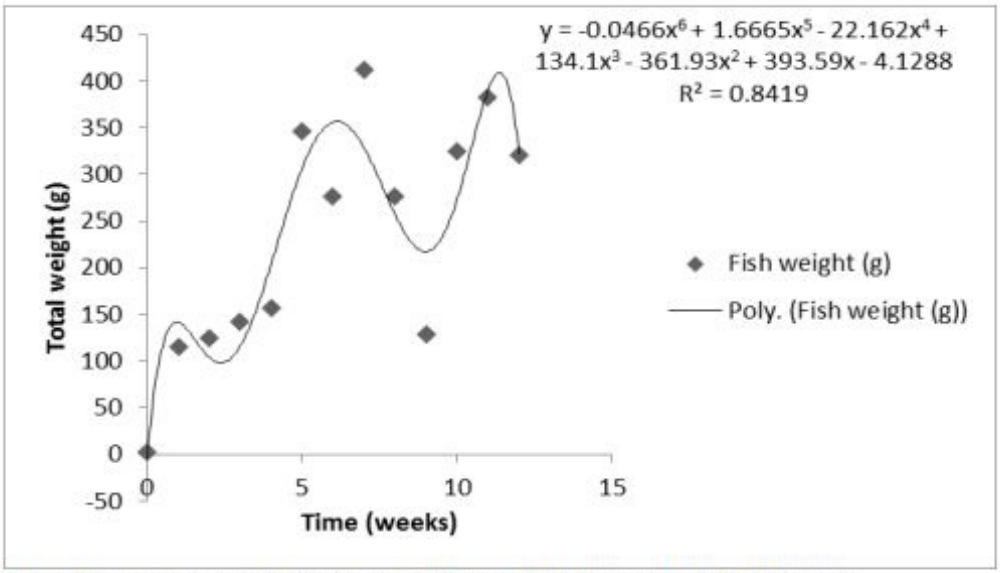


Fig. 6: Weight (g) against Time (weeks) in rice field plot 2 (SIAD-RP Project), University of Buea, Cameroon.

While the feeding rates of the fish in the ponds were at 5% body weight once daily, any food available to the fish in the rice plot was always there and, in a sense, ad libitum. Apart from receiving only a given quantity of feed, the ponds had a net covering that prevented the entry into conditions in the fishponds were therefore more limiting, minimising the uncontrolled growth of other aquatic species, such as frogs, toads and insects in the pond. On the other hand, fish in the rice plots had unrestricted

access to an abundance of such biodiversity found in the lake water. The average weight gain in two plots

(329.20±47.47g) compares favourably with the 55 g and 65 g fish weight gain obtained in a similar work by Ofori *et al.*, (2005) after 100 days of rice-fish culture. The final weight in the rice plots (332.06±35.11g) was superior to that (110.8g) recorded by Nnaji *et al.*, (2012) after 60 days of fish culture in rice plots.

CONCLUSION OF STUDY 1

In this study, it was demonstrated that *C. gariepinus* fish grew better in integration with rice in a controlled wetland (without artificial feeding) than in the conventional earthen pond system (where the fish were fed at 5% body weight) by at least ten times. We therefore conclude that rice-fish technology could be a viable option for food security in Cameroon and other developing African Nations. Its adoption by local farmers is recommended.

STUDY 2: ADVANCING AQUACULTURE 2: AQUAPONICS AS A CATALYST FOR SUSTAINABLE SOCIO-ECONOMIC DEVELOPMENT FOR RESEARCH AND INNOVATION IN AFRICA

THE REGULAR ASPECT OF AQUACULTURE

Fish Farming

Fish Farming is an aspect of aquaculture. About half the fish consumed today is raised globally through fish farming. Some of the common fish species that are farmed in Africa include the Tilapiine fishes (Cichlidae), Catfish (Clariidae) and Heterotis (Osteoglossidae).

Some fish species usually cultured in aquaponics

Tilapia is not a single species, but a common name for nearly a hundred species of Cichlid fish split across several genera. They are also known as the (Tilapiine fishes)-mainly *Oreochromis*, *Sarotherodon*, and [*Coptodon* (formerly part of *Tilapia*)]. They are located in Africa and the Middle East.

Major Tilapia species (Tilapiine fishes) and their Scientific Names:

Oreochromis niloticus (**Nile tilapia**) is the most widely farmed and consumed tilapia species in global aquaculture.

Oreochromis aureus (**Blue tilapia**) is a cold-tolerant species frequently used in weed control and food production.

Oreochromis mossambicus (**Mozambique tilapia**) is a historically important aquaculture species native to southern Africa.

Sarotherodon galilaeus (**Galilee St. Peter's fish**) and ***Sarotherodon melanotheron*** are mouthbrooding tilapia found in the Middle East and Africa.

Coptodon zillii (**Redbelly tilapia**, formerly ***Tilapia zillii***) is a substrate-spawner notable for eating aquatic vegetation.

Tilapia sparrmanii (**Sparrman's tilapia**) is a true member of the restricted *Tilapia* genus, known as a banded tilapia.

The family Clariidae includes freshwater fish known as the air-breathing catfishes or labyrinth catfishes. They feature elongated bodies, long dorsal fins without spines, four pairs of barbels, and a special suprabranchial organ that lets them breathe atmospheric air and move on land.

Major Genera in Clariidae (They are also cultured in aquaponic systems).

Clarias - The largest and most well-known genus, featuring species like the *Clarias gariepinus* (African sharptooth catfish) and the *Clarias batrachus* (walking catfish).

Heterobranchus - Large African catfishes featuring an adipose fin in addition to a long rayed dorsal fin.

Channallabes - Eel-like swamp dwelling Clariids with reduced eyes and fins.

Clariallabes - Elongated, burrowing or mud-dwelling African catfishes.

Encheloclarias - Small, slender, snake-like Asian Clariid catfishes found in peat swamps.

Gymnallabes - Highly specialized eel-like African species with reduced pectoral fins.

Horaglanis - Tiny, blind, subterranean cave-dwelling catfishes native to India.

Other Genera - Includes *Bathyclarias*, *Dinotopterus*, *Dolichallabes*, *Platyallabes*, *Platyclarias*, *Uegitglanis*, and *Xenoclarias.*

The aquafarms can be in the form of mesh cages submerged in water or concrete enclosures on land. **However, the fish farms can damage the ecosystem by introducing diseases, pollutants and invasive species.**

Why are human beings encouraged to eat fish?

Essential Amino Acids in Fish: Because proteins are made of amino acid building blocks, the nutritional value of

fish protein relies on providing the essential amino acids the human body cannot make on its own: Lysine, Leucine, Isoleucine, Valine, Methionine, Phenylalanine Threonine, Tryptophan, Histidine and Arginine (essential for growth and development).

Fish Protein better than chicken

In general, fish is considered a healthier option than chicken due to its high concentration of omega-3 fatty acids which are seen as healthy fats in contrast to the dangerous saturated fats in meat (Agritech, 2015).

Leech and Frank (2019) reported that there are Twelve (12) Health Benefits of Eating Fish: Fish is among the healthiest foods on the planet. It's loaded with important nutrients, such as protein and vitamin D. Fish is also a great source of omega-3 fatty acids, which are incredibly important for the body and brain.

1. High in nutrients

Fish is packed with many nutrients that most people are lacking. This includes high-quality protein, iodine, and various vitamins and minerals. Fatty species of fish are sometimes considered the healthiest. That's because **fatty fish**, including catfish, tilapiine fishes, salmon, trout, sardines, tuna, and mackerel, are higher in fat-based nutrients. This includes vitamin D, a fat-soluble nutrient that many people are lacking. **Fatty fish** also boast omega-3 fatty acid, which are crucial for optimal body and brain function and strongly linked to a reduced risk of many diseases (1 Trusted Source). To meet your omega-3 requirements, eating **fatty fish** at least once or twice a week is recommended. If you are a vegan, opt for omega-3 supplements made from microalgae.

2. Heart Health and Strokes

Heart attacks and strokes are the two most common causes of premature death in the world (2 Trusted Source). Fish is considered one of the most **heart-healthy foods** you can eat. Unsurprisingly, many large observational studies show that people who eat fish regularly have a lower risk of heart attacks, strokes, and death from heart disease (3 Trusted Source, 4 Trusted Source). In one study of more than 40,000 men in the United States, those who regularly ate one or more servings of fish per week had a 15% lower risk of heart disease (1 Trusted Source). Researchers believe that fatty types of fish are even more beneficial for heart health due to their high omega-3 fatty acid content.

3. Growth and Development

Omega-3 fatty acids are essential for growth and development. The omega-3 fat docosahexaenoic acid (DHA) is especially important for brain and eye development (1 Trusted Source). It's often recommended that pregnant and breastfeeding women eat enough omega-3 fatty acids (9 Trusted Source). Avoid raw and uncooked fish because it may contain microorganisms that can harm the fetus.

4. Brain Function

Your brain function often declines with aging. While mild mental decline is normal, serious neurodegenerative ailments like Alzheimer's disease also exist. Many observational studies show that people who eat more fish have slower rates of mental decline (10 Trusted Source). Studies also reveal that people who eat fish every week have more gray matter of their brain's major functional tissue- in the parts of the brain that regulate emotion and memory (11 Trusted Source).

5. Mental Health:

Depression is a common mental condition. It's characterized by low mood, sadness, decreased energy, and loss of interest in life and activities. Depression is currently one of the world's biggest health problems. Studies have found that people who eat fish regularly are much less likely to become depressed (12 Trusted Source). Numerous controlled trials also reveal that omega-3 fatty acids may fight depression and significantly increase the effectiveness of antidepressant

medications (13 Trusted Source). Omega-3 fatty acids in fish may also aid other mental conditions, such as bipolar disorder (16 Trusted Source). Omega-3 fatty acids may combat depression both on their own and when taken with antidepressant medications.

6. Vitamin D source:

Vitamin D functions like a steroid hormone in your body. Fish and fish products are among the best dietary sources of vitamin D. **Fatty fishlike salmon and herring** contain the highest amounts (18 Trusted Source). A single 4-ounce (113-gram) serving of cooked salmon packs around 100% of the recommended intake of vitamin D. Some fish oils, such as cod liver oil, are also very high in vitamin D, providing more than 200% of the Daily Value (DV) in a single tablespoon (15 ml). Fatty fish is an excellent source of vitamin D, an important nutrient in which over 40% of people in the United States may be deficient.

7. **Autoimmune protection**

Autoimmune diseases like type 1 diabetes occur when your immune system mistakenly attacks and destroys healthy body tissues. Several studies link **omega-3 or fish oil** intake to a reduced risk of type 1 diabetes in children, as well as a form of autoimmune diabetes in adults (19 Trusted Source). Eating fish has been linked to a reduced risk of type 1 diabetes and several other autoimmune conditions.

8. Asthma prevention in children

Asthma is a common disease characterized by chronic inflammation of your airways. Rates of this condition have increased dramatically over the past few decades (24 Trusted Source). Studies show that regular fish consumption is linked to a 24% lower risk of asthma in children, but no significant effect has been found in adults (25 Trusted Source). Some studies show that children who eat more fish have a lower risk of asthma.

8. **Vision protection in old age**

Age-related macular degeneration (AMD) is a leading cause of vision impairment and blindness that mostly affects older adults (26 Trusted Source). Some evidence suggests that fish and omega-3 fatty acids may protect against this disease. In one study, regular fish intake was linked to a 42% lower risk of AMD in women (27 Trusted Source). Another study found that eating **fatty fish** once per week was linked to a 53% decreased risk of neovascular ("wet") AMD (28 Trusted Source). People who eat more fish have a much lower risk of AMD, a leading cause of vision impairment and blindness.

10. Fish may improve sleep quality

Sleep disorders have become incredibly common worldwide. Increased exposure to blue light may play a role, but some researchers believe that vitamin D deficiency may also be involved (29 Trusted Source). In a 6-month study in 95 middle-aged men, a meal with salmon 3 times per week led to improvements in both sleep and daily functioning (30 Trusted Source). The researchers speculated that this was caused by the vitamin D content. Preliminary evidence indicates that eating fatty fish like salmon or *Clarias gariepinus* may improve your sleep.

11. Joint health

In the context of eating fatty fish, joint health means reducing body swelling, easing stiffness, and protecting the tissue cushions inside your joints. It centres on two main parts: omega-3 fats (EPA and DHA) and vitamin D.

Defending cartilage: Omega-3s lower the levels of special enzymes that break down the soft cartilage cushioning in your bones.

Better fluid maintenance: These healthy fats help maintain synovial fluid, which keeps joints lubricated for smooth movement.

Bone strength: Fatty fish provide vitamin D, which supports strong bones around the joints.

12. Delicious and easy to prepare

Fish is delicious and easy to prepare. For this reason, it should be relatively easy to incorporate it into your diet. Eating fish one or two times per week is considered sufficient to reap its benefits.

If possible, choose wild-caught fish rather than farmed. Wild fish tends to have more omega-3s and is less likely to be contaminated with harmful pollutants.

Risks of fish (Microplastics, Mercury)

There are certain hazards to eating fish regularly. Contaminants like mercury and polychlorinated biphenyls (PCBs) make their way into ocean water through our home and industrial waste, where they end up in the fish that reside there. Following mercury consumption, neurological and behavioural problems may occur. Tremors, sleeplessness, neuromuscular effects, migraines, and cognitive and motor impairment are among the symptoms. Pollutant levels in oily fish are often greater than in other forms of seafood. As a result, there are recommendations for the number of portions that certain groups should consume each week. Pregnant and nursing women should avoid some types of fish and restrict their consumption of others. This is due to the high amounts of mercury and toxins found in some seafood.

Neurotoxins in carnivorous reef fish

Bianfang *et al.* (2008) published a paper titled: **Ciguatera: the detection of neurotoxins in carnivorous reef fish from the coast of Cameroon, West Africa.** This work examined 64 large, carnivorous reef fish from the coastal waters of Cameroon for toxicity commonly associated with an incidence of Ciguatera fish poisoning. The samples were also subjected to m-DNA analyses to confirm their taxonomic identification.

The analyses showed that a subgroup of fish locally referred to as groupers are actually in the snapper family (*Lutjanus* spp.). Extracts from 22 barracuda *Sphyraena barracuda* and 42 snapper *Lutjanus* spp. samples were prepared and examined for the presence of Ciguatera-like toxins. Two barracuda and one snapper tested positive for a sodium-channel activator, i.e. presumptive ciguatoxin, in the N2a assay. **These results represent the first analytical report indicating the presence of sodium-channel-specific neurotoxins in fish from along the coast of West Africa.** The authors reported that, given the importance of such marine carnivores to the nutrition and socio-economy of the coastal populace (i.e., the common people along the Atlantic Coast of Cameroon), education and disease management appear to be warranted.

FISH HEALTH IN AQUACULTURE: GUIDES TO DISEASE PREVENTION AND ENVIRONMENTAL MONITORING SYSTEMS

There are major international guides to disease prevention in Aquaculture

The ASC sustainability label on seafood products

What does the ASC sustainability label on seafood products really mean?

The abbreviation **ASC** stands for the **Aquaculture Stewardship Council.** It is an independent international non-profit organization that satisfies responsibly farmed seafood. When you buy products with the **ASC sustainability label** (Figure 7)**,** you are choosing seafood from ASC-Certified farms that have been independently assessed against stringent environmental and social requirements. These farms are audited on how they are managing their impact on the environment, fish health, workers and local communities (ASC, 2024).



Figure 7: The ASC sustainability label on seafood products Sources (ASC, 2024)

What farms are assessed on:
ASC-certified farms must meet strict requirements, bringing together impact-driven improvements focused on the farm, its fish, people and the planet. Farms must monitor, measure, and manage their environmental impacts. Siting farms in sensitive or protected areas (like mangroves, peat, swamps, or rivers) is highly restricted with limited exceptions.
Conservation of water resources: ASC-certified farms must regularly test water quality and demonstrate that specific limit values are not exceeded. This both prevents disease and minimizes impacts on the surrounding environment, such as the seabed. Wastewater and sludge treatment systems must meet stringent requirements.
Conservation of species diversity and protection of wild fish stocks: The ASC Salmon Standard explicitly requires an environmental impact assessment to protect birds, marine mammals, and sensitive habitats; other standards also prohibit any interference with endangered species. All standards set high requirements to minimize fish escapes and thereby protect wild populations (ASC, 2024).

Managing Fish Health
ASC standards focus on preventing disease rather than relying on treatments.
Every farm must implement a strict Fish Health Management Plan under veterinarian supervision. When medical treatment is necessary, strict controls are in place including: Reduction plans and species-specific limits on the use of antibiotics (banned for ASC-labelled shrimp) Targets for lowering medicinal treatments for parasites (i.e. sea lice) and public reporting and coordination with neighbouring farms to prevent regional outbreaks

Using Resources Efficiently
Farms must monitor and report their energy use and greenhouse gas emissions to continuously improve energy efficiency. What farmed fish eat matters a lot. ASC-certified farms are required to improve efficiency and reduce waste, including limiting feed loss and nutrient pollution entering surrounding waters, and minimizing the use of wild fish as an ingredient for feed.

Since **31 October 2025,** ASC-certified farms have been strictly required to use ASC-conforming feed produced by feed mills certified to the ASC Feed Standard. By linking farm requirements directly to feed mill supply chains, this system verifies that marine ingredients are certified and/or from improving fisheries, and that plant ingredients are sourced to avoid deforestation risks, significantly reducing the overall impact on deforestation and overfishing.

What Does 'Certification' Mean?

Participation in the ASC programme is voluntary. Farms can choose to be audited against ASC requirements. Audits are conducted by independent certifiers (called Conformity Assessment Bodies or CABs), ensuring impartiality. CABs hire qualified auditors to check that farms comply with ASC standards. Farms operate on a three-year certification cycle, starting with an initial audit followed by two annual surveillance audits to ensure ongoing compliance. Only farms that pass these checks can hold ASC certification, allowing them to use the ASC label on their packaging.

Environmental Monitoring Systems (EMS)

An **Environmental Monitoring System (EMS)** is a network of smart sensors, software, and communication

tools that track and record conditions like temperature, humidity, air quality, and water purity in real time. It sends fast alerts if dangerous gradients occur so people can fix problems early. An Environmental Monitoring System (EMS) in aquaculture is an integrated network of digital sensors and internet-connected tools that track water quality and weather conditions in real time. It helps fish and shrimp farmers prevent disease, optimize feeding, and protect aquatic life.

The Global Food-Security Imperative

Food security is the foundation of every other form of human security. A society that cannot feed itself cannot educate itself, defend itself, govern itself, or dream with confidence. Yet, as of the most recent reporting cycle of the Food and Agriculture Organization of the United Nations, the trajectory of the global food system, and particularly its aquatic sub-system, is at a decisive inflection point.

According to *The State of World Fisheries and Aquaculture 2024* (SOFIA 2024), the Food and Agriculture Organization of the United Nations (FAO) reported that global aquaculture production reached 130.9 million tonnes in 2022, valued at approximately USD 312.8 billion, a 56 per cent increase over the value reported only a decade earlier (FAO, 2024). In that same year, for the first time in recorded history, **aquaculture surpassed capture fisheries in aquatic animal production**, accounting for 94.4 million tonnes, or 51 per cent of world output, and an unprecedented 57 per cent of all aquatic animal production destined for human consumption (FAO, 2024). By 2024, the FAO further reported that aquaculture produced 103 million tonnes of aquatic animals, equivalent to 53 per cent of global aquatic animal output and more than 59 per cent of aquatic animal foods for human consumption (FAO, 2024), as cited in Wikipedia (2026).

Ladies and gentlemen, the geography of food production is also the geography of food vulnerability. The asymmetry is widening, not closing.

Africa's Blue Economy Opportunity

To understand the African opportunity, we must first understand the African condition. The WorldFish Centre, a CGIAR research institution working across 20 countries in Asia, Africa and the Pacific, summarises the challenge plainly:

"*Africa faces extreme poverty and food and nutrition security challenges. More than 40% of the population lives on less than USD 1.90 a day and 38% of children under five are malnourished. Demand for food will continue to grow as the continent's population is set to double to 2.4 billion by 2050*".

Despite this, fish and other aquatic foods already supply **19 per cent of animal protein intake** among African consumers, a contribution often under-reported in continental food-policy discourse. Yet, average fish consumption in Africa stands at only 9.2 kilograms per capita per year, the lowest of any continent. The deficit is not one of preference but of supply.

Three propositions follow

The first is that the African food-security crisis is, in significant measure, an **aquatic food deficit**. Closing it requires deliberate investment by the state, the private sector, and the research community in aquaculture, alongside (not in place of) agriculture.

The second is that the African aquaculture sector is, in its present form, **underdeveloped relative to its potential**. The FAO's two-percentage-point share for the entire continent is not a structural ceiling but a developmental opportunity. Egypt, Nigeria, Ghana, Kenya, Tanzania, Zambia, Malawi, Uganda, and Madagascar have already shown that aquaculture can grow rapidly where the policy environment, the research base, and private capital align.

The third is that the demographic trajectory is unforgiving. Africa's population is projected to double to 2.4 billion by 2050. If current per-capita fish consumption remains at 9.2 kg, the continent will need to add roughly 120 million tonnes of aquatic food annually, more than the entire current global aquaculture output of Africa, Asia, and Latin America combined, simply to maintain present, and already inadequate, consumption levels. The mathematics of food security on this continent are, therefore, not arithmetic. They are exponential.

This is the macro-context into which aquaponics enters, as a necessity rather than a luxury.

There is a peculiar symmetry between a convocation and the subject of this address. A graduation marks a passage. It is the moment when an intern crosses from the supervised pursuit of knowledge to its autonomous, productive, and accountable application in society. **Aquaculture, and more specifically aquaponics,** is at an identical threshold. For millennia, humanity has harvested water bodies and coaxed food from the land in largely separate enterprises. Today, the convergence of those enterprises into a single, closed-loop, knowledge-intensive production system mirrors, almost pedagogically, the convergence of disciplines that defines the modern research institute: biology with engineering, chemistry with economics, computer science with public health, and environmental science with social policy.

The Peace House Research and Innovation Centre of Excellence (PRICE) exists to equip science and engineering graduates to become impactful, faith-driven problem-solvers through a two-year programme that integrates intensive technical training, academic mentorship and discipleship, Christian character formation, and real-world research projects in mechatronics, physical and life sciences, and information and communication technology**.**

The choice of ***"Advancing Aquaculture: Aquaponics as a Catalyst for Sustainable Socio-Economic Development for Research and Innovation in Africa"*** as the theme of this convocation lecture is, in that sense, both a scientific statement and an institutional one. It tells us, with the clarity of an academic charter, that PRICE intends its interns not merely to find employment but to *create* the institutions, enterprises, and innovations that will feed, employ, and sustain the Africa of 2050 and beyond.

Before we turn to the substance of the lecture, I want to name its theological premise plainly. In the second chapter of Genesis, after forming the man from the dust of the ground, "the Lord God took the man and put him in the garden to *work it and keep it*" (Genesis 2:15, ESV). That ancient commission, to till and to keep, is the original research-and-innovation charter. To work the land is to investigate it; to keep it is to steward it. The scientist in the laboratory, the engineer at the bench, the farmer at the pond are all, in their proper station, answering the question God asked Adam in a garden. Aquaponics, in particular, is a 21st-century exercise in that first vocation: producing food while preserving the water, the soil, and the microbial life on which the next harvest depends.

I congratulate each graduating intern on the perseverance that has brought you to this podium. I congratulate your families, who have paid the unseen costs of this achievement. And I congratulate the Management, Mentors, and Staff of PRICE, who have laboured, often without fanfare, to keep the lamp of learning burning here in Gboko.

Aquaponics as a Convergence Technology

What, then, is aquaponics? The term, a portmanteau of "aquaculture" and "hydroponics," describes the **coupled production of fish (or other aquatic organisms) and plants in a recirculating water system**, in which the nutrient-rich effluent of the fish tank fertilises the hydroponically grown plants, whose roots in turn filter and oxygenate the water before its return to the fish. Aquaponics is a sustainable food production system that combines traditional aquaculture with hydroponics, with effluent from the water in which fish are reared being used as nutrition for plants. In the modern literature, the three principal designs are: media-based grow beds with ebb-and-flow irrigation; deep-water culture (DWC) using floating rafts; and the nutrient film technique (NFT).

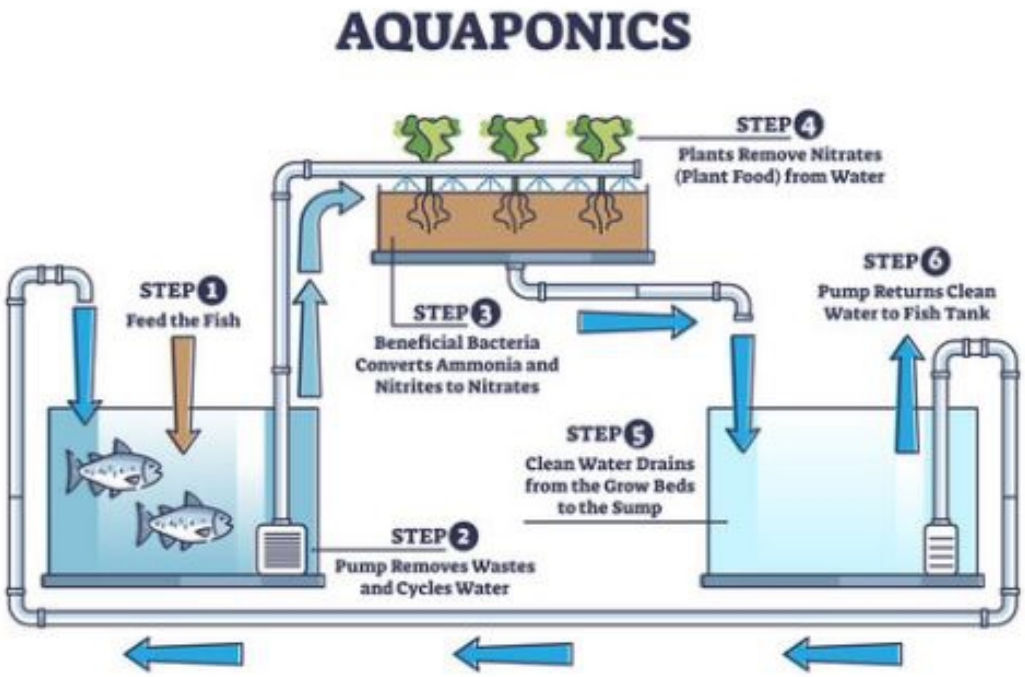


Figure 8: Aquaponics system showing the movement of water for the production of Fish and plants (Source: Wikipedia, 2026, "Aquaponics").

The intellectual lineage of aquaponics is both ancient and modern. The Aztec Chinampas of pre-Columbian Mesoamerica, the rice–fish polyculture of South China and Southeast Asia attested from at least the fifth century CE, and the *jiatian* floating rafts described in Wang Zhen's thirteenth-century *Book on Farming* are all recognised antecedents (Wikipedia, 2026, "Aquaponics"). The contemporary, science-engineered form, however, is largely a product of late-twentieth-century research, most prominently the work of the New Alchemy Institute (1969), Mark McMurtry at North Carolina State University in the 1980s, and James Rakocy at the University of the Virgin Islands, whose deep-water-culture system, developed between 1979 and 1997, remains the reference design for commercial systems today (Wikipedia, 2026, "Aquaponics") and the integrated Fish-Cum-Rice-Cum Poultry and Pig Production in the University of Buea 3.1 Hectare wetland (CORAF/WECARD, 20214).

What distinguishes aquaponics from conventional aquaculture or hydroponics is **the emergence of a third system (Figure 8)**: a self-regulating, biologically mediated ecosystem in which bacteria, principally *Nitrosomonas* spp. and *Nitrobacter* spp., convert toxic ammonia from fish metabolism first to nitrite and then to nitrate, the form of nitrogen most

readily absorbed by plants (Wikipedia, 2026, "Aquaponics"). This microbial bridge is what makes the system a genuine symbiosis rather than a juxtaposition.

United Nations (2018) reported that t**his biological elegance of aquaponics translates into a set of practical advantages that are well-suited to African contexts:**

1. **Water efficiency.** Aquaponics uses approximately 90–95 per cent less water than conventional soil agriculture for equivalent plant biomass, because water recirculates rather than draining away. In arid and semi-arid zones of Africa, including the Sahel, the Horn, the Karoo, and much of North Africa, this is decisive.
2. **Land efficiency.** Vertical stacking, greenhouse integration, and rooftop siting permit production per unit area that may exceed field agriculture by an order of magnitude. This matters where arable land is scarce, contested, or under population pressure.
3. **Zero or near-zero discharge of nutrient effluent.** Conventional aquaculture is often criticised for the eutrophying potential of its discharge. Aquaponics internalizes that discharge as fertiliser, converting a waste stream into a productive input, in line with the circular-bioeconomy principle.
4. **Dual output of protein and vegetables**. A single integrated system produces high-value animal protein and fresh leafy vegetables simultaneously, addressing two dimensions of the African malnutrition burden, namely protein deficiency and micronutrient (especially vitamin A and iron) deficiency, within one operational unit.
5. **Year-round production under protected cultivation**. With greenhouse enclosure, productive cycles become independent of season. This stabilizes both household income and urban food supply.
6. **Scalability and entry-level accessibility.** Units range from backyard family systems of a few square metres to commercial installations of several hectares, and capital requirements scale accordingly.

The Socio-Economic Catalyst

Aquaponics is more than a clever technology. It is a productive system whose design choices generate identifiable, measurable effects on employment, gender equity, household nutrition, urban resilience, and educational attainment.

Employment and Enterprise

Conventional capture fisheries in Africa are concentrated in coastal and lacustrine communities; their geographical incidence is narrow. Aquaculture, and particularly aquaponics, is geographically emancipated. It can be practised in any settlement with a reliable water supply and an electricity source, or with increasingly affordable solar pumping. This opens participation to populations that have historically been excluded from the fisheries value chain: landlocked populations, peri-urban communities, women, and youth. In a continent where the median age is under 20 and where formal-sector employment lags demographic growth, the labour-absorption potential of small-to-medium aquaponic enterprises is real (Obirikorang *et al* (2021).

Gender Inclusion

The WorldFish Center reports that approximately one quarter of the 12 million Africans employed in fisheries and aquaculture are women, the great majority of them in postharvest processing and trade. Aquaponics reconfigures this pattern in two important ways. First, plant cultivation, the dominant labour input in an aquaponic system, has historically been women's work in many African cultures, and aquaponics extends and dignifies that work. Second, the indoor, controlled-environment character of aquaponic operations reduces the physical-safety and mobility constraints that often

exclude women from open-water fisheries. The result is a higher female participation rate than in capture fisheries (WorldFish, n.d.).

Nutrition and Food Sovereignty

A typical 1,000-litre aquaponic tank coupled to a 10-square-metre deep-water-culture bed can yield, per annum, on the order of 40–60 kilograms of edible fish and 200–300 kilograms of fresh vegetables, depending on species choice, climate, and management intensity. For a household of six, this is a meaningful supplement to dietary protein and micronutrient intake. Scaled to institutional settings such as schools, prisons, hospitals, and military barracks, the nutritional leverage is substantial (FAO, 2026)

Urban and Peri-Urban Resilience

By 2050, Africa's urban population will have more than doubled Feeding that urban population with conventional supply chains, anchored in long-distance road transport and cold-chain-dependent meat and vegetable value chains, is environmentally and economically unsustainable. Aquaponics, sited on rooftops, in basements, on vacant urban lots, and at the peri-urban fringe, offers a strategy of urban food autonomy that is climate-resilient, post-harvest-loss-minimising, and price-stabilising (Bimpe et al 2024).

Education and Research

Finally, aquaponics is a superb educational platform. In a single system, it is a working laboratory of biology (nitrification, plant physiology, fish nutrition), chemistry (water quality, nutrient cycling), engineering (hydraulics, sensor instrumentation), economics (cost-benefit analysis, market positioning), and environmental science (closed-loop waste management). The pedagogical density of aquaponics per unit of laboratory space is, in my view, hard to match (Baykır *el al* 2023).

Innovation, Research, and the Role of Peace House Research and Innovation Centre of Excellence (PRICE)

This brings me to the institutional heart of the lecture: the role of research and innovation, and of PRICE in particular.

Before naming the research priorities, I want to speak plainly to a question that PRICE was founded to answer: *what does it mean to do science as a Christian?* I do not offer a full theological treatise here, but I do offer a working conviction.

The Christian researcher is not a contradiction in terms. He or she is, rather, a creature fulfilling the original creation mandate. The Apostle Paul, writing to the Colossians, commanded: *"Whatever you do, work heartily, as for the Lord and not for men"* (Colossians 3:23, ESV). When a PRICE intern measures nitrate concentration in a fish tank, when he/she writes a line of code for a digital library, when he/she assembles the chassis of an electric vehicle prototype — in that verse, that work is being done *for the Lord.* The standard is not the journal's impact factor or the start-up's valuation; the standard is the Master whom we serve.

Equally, the Christian cannot be indifferent to the hungry. Jesus will say, in the great judgment scene of Matthew 25, *"I was hungry, and you gave me food; I was thirsty, and you gave me drink"* (Matthew 25:35, ESV), and he will treat every act of feeding and watering the poor as an act done to him. Aquaponics, properly practised, is one of the most direct ways in which a young scientist in Tiv land can answer that sentence. The fish you raise and the vegetables you grow are, in that text, not commodities. They are acts of mercy.

Three areas of research are, in my assessment, *pre-eminent* for the African aquaponics agenda. I commend them to the graduating class, to the faculty of PRICE, and to our funding partners (**who are correct disciples of our LORD JESUS CHRIST**).

Climate-Smart System Design for African Conditions

Most published aquaponics research has been conducted in temperate, energy-rich, capital-abundant contexts. African conditions are different. Solar radiation is abundant but diurnal; grid electricity is intermittent; ambient temperatures may exceed the thermal optima of standard species (tilapia, lettuce) for substantial portions of the year. **Research is needed on low-energy, solar-integrated, evaporatively cooled, low-water-demand system designs** suited to the African climate and energy landscape. This is the precondition for adoption, not a marginal concern (Wikipedia, 2026, "Aquaponics").

Local Feed and Local Seed

Fish feed represents 60–70 per cent of the operating cost of a typical aquaponic enterprise. The dominant commercial feeds are formulated for salmonid and shrimp species, often imported, and built from commodities (fishmeal, soybean meal) that are themselves volatile in price. **Research on locally formulated feeds**, using insect meal (*Hermetia illucens* larvae), single-cell protein, agro-industrial by-products, and regionally available oilseeds, **is a priority frontier.** Concurrently, the development of improved, locally adapted fish strains, such as the Genetically Improved Farmed Tilapia (GIFT) and the Genetically Improved Abbassa Nile Tilapia (GIANT), the latter now in its twenty-fifth generation of selective breeding at the WorldFish Abbassa facility in Egypt, shows that the genetics of the cultured organism is itself a research frontier with high social return.

Market, Policy, and Social Research

The most elegant technology, left unsupported by market and policy infrastructure, fails. Research is needed on (a) consumer willingness-to-pay for aquaponic produce, (b) the comparative cost-competitiveness of aquaponic versus conventional protein and vegetable supply in African urban markets, (c) the regulatory environment for water reuse and food safety, (d) gender-disaggregated labour and income outcomes, and (e) effective models for technology transfer and youth entrepreneurship.

The Peace House Research and Innovation Centre of Excellence (PRICE) Agenda

For PRICE specifically, I propose a Five-Point Aquaponics Research and Innovation Agenda. **These five points are designed to extend and reinforce the Institute's existing research themes,** Mechatronics, Life and Physical sciences, and ICT, rather than to displace them.

i. Add an **Aquaponics Research Track** to the existing Bioscience Research Unit. This is the natural home for an aquaponics programme within PRICE: the same water-quality sensors, the same biological monitoring practices, and the same publication-and-prototype discipline already in place. Aquaponics would, in effect, become the Bioscience Unit's applied-agriculture sister laboratory.

ii. Embed a **cross-cutting Aquaponics Module** into the ICT and Computing Solutions track. Smart systems for water-quality monitoring, automated feeding, plant-growth telemetry, and market-information dashboards are precisely the kind of human-centred software problems PRICE's computing interns are already equipped to solve. An aquaponics pilot would generate at least two capstone projects per cohort.

iii. Develop a **PRICE Aquaponics Curriculum**, delivered as a short-course elective within the two-year

internship, that produces interns who can simultaneously design a system, run a small enterprise, and supervise a workforce. The pedagogical backbone is already present.

iv. Partner with the **African Union's Blue Economy Strategy**, the **FAO Blue Transformation initiative**, and the Nigerian agricultural research system (notably the National Institute for Freshwater Fisheries Research, New Bussa, and Benue State University, Makurdi) so that PRICE's outputs can inform policy at the national and continental level. Aquaponics research here in Gboko should travel to Abuja, Addis Ababa, and Rome. **We have prayed, and are still praying to the ALMIGHTY GOD, to give PRICE a Scientific and Technological jump of 300 years.** Truly, the **New Creation Man (2 Corinthians 5:17 and Galatians 2:20)** can do far more than we can ever think or ask. **Read Daniel 1:3-4,17 (KJV); 1 Corinthians 2:9 (KJV); 1 Corinthians 1:30 (KJV).**

v. When the LORD permits, build a **public-engagement and demonstration programme** that places operational aquaponic systems in schools, churches, and community centres across Benue State and the Middle Belt, so that the technology is seen, understood, tasted, and trusted. In a region already recognised as the Food Basket of the Nation, the most credible testimonial for aquaponics is the demonstration unit on a Pastor's compound or a school headmaster's grounds.

These five points are not aspirations. They are deliverable. Each has measurable indicators, responsible officers, and a defined horizon.

A Few Words to the Graduating Interns

To the Graduating Interns, to whom every previous word of this lecture has been directed:

You are leaving this Institute at a moment of real possibility and real responsibility. The world that awaits you is one in which the dominant questions of the twenty-first century – **how to feed ten billion people**, how to live within planetary boundaries, how to convert knowledge into inclusive prosperity, a**re questions that Africa must answer by innovation rather than by importation.**

You have been trained here. You have been tested here. You have been mentored by Christian academics and discipled by CHRIST, the LORD and human disciplers here. You now belong to the wider community of those who must *act*, who must build, cultivate, measure, fail, repair, and persist. The motto of this Institute reminds you, and rightly so, that the work you are about to do is not for price nor for reward (PRICE motto). It is, instead, for the people you will serve and the ALMIGHTY GOD you profess as Lord. Christ has been preached to you. The Spirit has been poured into you. Now, He is sending you out into the laboratory, the farm, the classroom, the boardroom, the village, the city, to do the work he has prepared for you to do.

"*For we are His workmanship, credited in CHRIST JESUS unto good works, which GOD had before ordained that we should walk in them*" (Ephesians 2:10).

I charge you with seven commitments.

First, work as for the Lord. This is not pious language; it is operating instruction. The Apostle Paul commands: *"Whatever you do, work heartily, as for the Lord and not for men"* (Colossians 3:23, ESV). Your diligence, your honesty in measurement, your refusal to cut corners on data, your willingness to redo the experiment that did not work — all of these are not merely professional virtues. They are acts of worship. Do them for Christ, and you will not grow weary.

Second, never abandon the discipline of evidence. In a world saturated by opinion, your professional advantage is the

capacity to gather, weigh, and act upon evidence. Whether in fish-tank water-quality data, in the balance sheet of a start-up, or in the demographic projections of a national nutrition policy, *measure first, decide second.* The scientific attitude of the mind you have been trained in is a gift from the GOD who made a knowable world (the Physical World of Nature and the Energy Matter Continuum). Do not let it atrophy (waste away) under the pressure of convenience or sentiment.

Third, think in systems. The aquaponic system is more than fish plus plants; it is a system whose parts are unintelligible without the whole. So, too, the African food system, the African energy system, the African education system. Your generation's distinctive competence must be systemic: the perception of feedback, of leverage points, of unintended consequence. A systems thinker sees the small change that shifts the larger whole. The Apostle Paul, writing to the Corinthians, compared the church to a single body with many members, "so that there may be no division in the body, but that the members may have the same care for one another" (1 Corinthians 12:25, ESV). Your aquaponic system, your research institute, your nation - they are the same kind of body. Honour every part.

Fourth, feed the hungry and water the thirsty. When the Son of Man comes in his glory, he will separate the sheep from the goats on the basis of whether they fed him when he was hungry and gave him drink when he was thirsty (Matthew 25:35). He was not speaking in metaphor only. There are real hungry children in Gboko, in Makurdi, in Lagos, in Maiduguri. There are real thirsty families. Aquaponics produces protein and vegetables. If you take this vocation seriously, you will, in your own way, answer that sentence.

Fifth, build where you stand. You will be tempted, especially in your first years, by opportunities abroad. Some of those opportunities are genuine, and a period of international exposure is, for many, formative. Africa, however, needs its best minds to *return and build*, not merely to leave. Jesus wept over Jerusalem because he knew the cost of a generation that had not been gathered to its own purpose (Luke 19:41–44). Do not weep over Africa. Build her.

Sixth, remain faithful with what you have been given. The Master in the parable entrusted different sums to different servants and asked each to trade with what he had been given (Matthew 25:14–30). The servant who buried his talent was not condemned for laziness alone; he was condemned for distrust of the Master. Use the training you have received. Multiply it. Do not bury it in a comfortable job that asks nothing of your conscience or your mind. Be a trader.

Seventh, remain humble before the knowledge you have not yet acquired. A convocation does not certify omniscience; it certifies readiness to begin. The most dangerous intern-turned-practitioner is the one who has stopped learning. The most useful is the one who has learned to learn.

Conclusion

Ladies and gentlemen, the case I have set out in this lecture can be summarised in six propositions:

- **Aquaculture** has become the dominant mode of aquatic animal production in the world, contributing more than half of all aquatic food consumed by humanity (FAO, 2024).
- **Africa,** despite housing one fifth of humanity, contributes only two per cent of global aquaculture and bears the world's lowest per-capita fish consumption (FAO, 2024; WorldFish, n.d.).
- **Aquaponics,** as a coupled aquaculture–hydroponics system with internalized nutrient cycling, is well-suited to African conditions of water scarcity, land pressure, urbanization, and nutrition need, and particularly to the Benue State context, a region historically celebrated as the Food Basket of the Nation.
- **Aquaponics** functions as a **socio-economic catalyst** through its effects on employment, gender inclusion, nutrition, urban resilience, and education.
- **Research and innovation**, in system design, in feed and seed, and in market and policy, are the critical levers for realizing this potential.

- Institutes of research and innovation, and the **Peace House Research and Innovation Centre of Excellence (PRICE)** in particular, carry a constitutive responsibility to lead this agenda as an expression of their vocation to equip science and engineering (including mechatronics) graduates to become impactful, faith-driven problem-solvers.

I would like to close with a simple observation. In an **aquaponic** system, the fish feed the plants, the plants clean the water for the fish, and the microbes do the invisible work that makes both possible. Each element is dependent. The system is healthy only when each element is cared for.

Aquaponics is, in a small way, the science of that morning: fish and bread, fish and plants, the production of food by a Master who cares for the body as well as the soul (Read: John 21:9-14)

A graduating class is no different. The Institute fed the intern; the intern, in time, becomes the Institute that feeds the next. The community serves its people; its people, in turn, become the community that serves the next generation. The cycle is not a slogan. It is the curriculum, and it has "***a LORD, JESUS CHRIST and HIM glorified" meaning JESUS CHRIST- His identity, His work, and His supreme preeminence- is the absolute centre, core message, and ultimate goal of all teaching and learning.*** We have gathered here in Gboko, the home of this Institute and the historic heart of Tiv land, a place whose name is associated with hospitality, productivity, and peace. May the work of this Convocation bear fruit in this soil. May the Peace House Research and Innovation Centre of Excellence (PRICE) continue to grow into the institution its founders and the elders envisioned. And may the African continent, whose children, your children, our children, are waiting for the systems you will build, find in this generation what it has so long needed: builders who can think, thinkers who can build, and citizens who can do both with integrity.

Acknowledgements

The authors of this paper are grateful to the Management of the Peace House Research and Innovation Centre of Excellence (PRICE) for the invitation to deliver this Convocation Lecture. Useful data and contextual materials were drawn from the open publications of the Food and Agriculture Organization of the United Nations, the WorldFish Centre of CGIAR, and from the open-access encyclopaedic literature on **aquaculture and aquaponics.**

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MEET PRICE SET 4









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INSTITUTION ATTENDED

University of Benin, Nigeria

COURSE STUDIED

B. Eng. Mechanical Engineering

DEPARTMENT IN PRICE

Mechatronics

SKILLS AQUIRED

Python Programming, 3D CAD Modelling using SOLIDWORKS, Autodesk Inventor, and Siemens NX, Web Development, Computer Networking, Research and Technical Writing, Leadership, and Entrepreneurship.

ONLINE COURSES & CERTIFICATIONS

Cisco Networking Essentials; Python for Data Science, AI & Development; Machine Design; Siemens Expedite - Skills for Industry: Industry Foundations

PROJECT WORK IN PRICE

Design and Implementation of a Smart Water Supply System



My experience at PRICE has exposed me to research, teamwork, collaboration, and practical problem-solving, equipping me with valuable tools for my career as a mechanical/mechatronics engineer. Through research and project work, I gained practical experience in publishing, critical thinking, methodical problem-solving, and the use of AI as a thinking companion.

Most importantly, PRICE has helped me rediscover and clarify my vision, aligning my passion for science and technology with my desire to develop solutions to pressing challenges in Nigeria, Africa, and the world. I am leaving PRICE with greater clarity, purpose, and a stronger sense of direction for the future.



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INSTITUTION ATTENDED
Auchi Polythechnic, Auchi- Edo-State

COURSE STUDIED
HND, Electrical Electronics Engineering Technology

DEPARTMENT IN PRICE
Mechatronics

SKILLS AQUIRED

Solar Power Installation and Management, Welding and Fabrication, Web Development using HTML, CSS and Javascript, Arduino Programming and Circuit Interfacing, Risk Management, Research and Technical Writing, Leadership, and Entrepreneurship.

ONLINE COURSES & CERTIFICATIONS

CISCO: CSS Essentials, Networking Essentials, JavaScript Essentials, HTML Essentials, Python Essentials, Introduction to Data Science
UNIATHENA: Basics of Operation and Project Management, Basics of Machine Learning Algorithm, Basics of Electrical Safety Programs, Basics of Fire Risk Assessment and Prevention, Basics of Cyber Crime, Basics of Engineering Management, Basics of Artificial Intelligence: Learning Models
SIMPLILEARN: Project Management 101, Introduction to IoT, Introduction to Cyber Security.

PRICE



PROJECT WORK IN PRICE

Design and Fabrication of an Electric Bike (Completed – Group work)
Design and Fabrication of an Electric Tricycle (Ongoing – Group work)
Construction of a mobile solar-powered tent (Completed – Group work)
Construction of Ergonomic Chairs (Completed – Group work)

Knowing my struggles, I was looking for a place where I could find rest. So, I applied for the LEDEYO internship programme, which was to run for a year, hoping to find the help I needed. However, upon coming to Gboko, God, contrary to my expectations, arranged another platform for me—PRICE. PRICE was God's divine provision and a platform for moulding me and making me rest on His sure Word. The help I was looking for came to me through PRICE. Hallelujah!



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INSTITUTION ATTENDED
University Of Ibadan

COURSE STUDIED
MSc Physiology

DEPARTMENT IN PRICE
Life and Physical Science

SKILLS AQUIRED

IOT and Arduino, Cybersecurity and Networking, Epidemiological Modelling, Health Ethics in Human Research, Solar Farm Management, Data Analytics, Research and Technical Writing, Leadership, and Entrepreneurship.

ONLINE COURSES & CERTIFICATIONS

Introduction to Research Ethics, Research Ethics Evaluation, Informed Consent Certificate, Good Clinical Practice (GCP-E6(R3) 2025, Training in the Nigerian National Code for Health Research Ethics, Certificate of Participation in the ICAMMDA International School and Modelling Analytics, June 2025.

PRICE



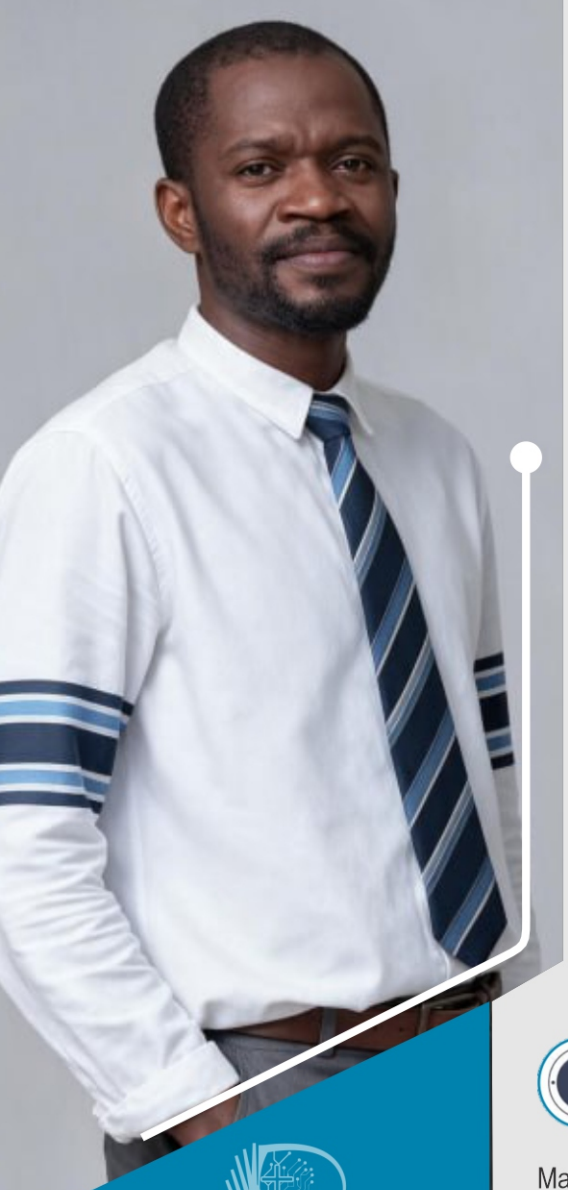
PROJECT WORK IN PRICE

Calibration and Validation of Neonatal Jaundice Device—Ongoing Group work
Modelling the effect of Vaccination on Measles Transmission Dynamics in Borno State (Ongoing Group work)

My coming to PRICE has been nothing short of divine intervention. Through its practical, project-based training, I gained valuable skills in data analytics, Arduino programming, and research, while the leadership development programme prepared me for excellence in both spiritual and professional life.

Most importantly, I encountered God in profound ways and experienced an impact that will remain with me for life. I am deeply grateful for all the Lord has done for me.

PRICE is indeed a Family, an Encounter, a Training, and a Blessing.



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INSTITUTION ATTENDED
University of Agriculture, Makurdi, Benue State

COURSE STUDIED
B.Eng Mechanical Engineering

DEPARTMENT IN PRICE
Imechatronics

SKILLS AQUIRED

Backend Development using Python (FastAPI and Django), AI and Machine Learning, Embedded Systems and Hardware Engineering, Renewable Energy Engineering, Fabrication, Research and Technical Writing, Leadership, and Entrepreneurship.

PRICE



ONLINE COURSES & CERTIFICATIONS

Machine Learning Specialisation, Google Data Analytics Course Specialisation, Ultimate Guide to FastAPI and Backend Development Specialisation, Applied Sustainability for Technical Managers Specialisation, Renewable Energy Specialisation by University of Colorado, Boulder, Solar Energy for Engineers, Architects and Code Inspectors Specialisation, Precalculus Through Data and Modelling Specialisation, Google Project Management Specialisation, Deep Learning Specialisation.

PROJECT WORK IN PRICE

1. Development of an Electric Vehicle (Completed)
2. Automation of the Electric Vehicle (Ongoing) - Group work
3. Development of a Bible-based Chatbot System - Group work

Two stories from the Bible aptly summarise my experience before and during my time at PRICE: the story of the Ethiopian eunuch in Acts 8:27–39 and that of young Samuel in 1 Samuel 3:1–10.

Before coming to PRICE, my desire was for practical discipleship. I had carried many questions in my heart for a long time, particularly about the balance between authentic Christian living and career, among others. My time at PRICE has not only provided answers to many of these questions but has also deeply engaged my HEART, HEAD, and HANDS for a greater purpose than the one I had previously lived for.

Beyond words, through the experiences and exposures I have received here, I have seen practically what it means to be a disciple who carries the life of Christ into the professional space, marriage, and every other sphere of life. I leave PRICE with no excuses, but with a deeper sense of responsibility and purpose. For all that God has done in and through this experience, I am forever grateful.



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INSTITUTION ATTENDED

Ogun State Institute of Technology, Ogun State.

COURSE STUDIED

HND Computer Science

DEPARTMENT IN PRICE

Information Technology

SKILLS AQUIRED

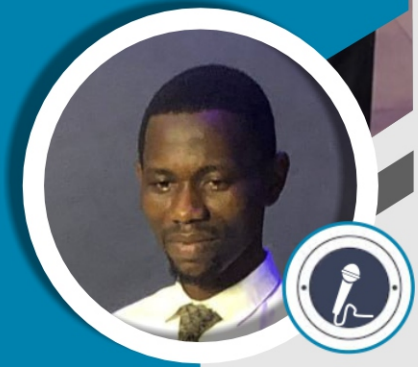
Frontend (Html, CSS, JavaScript, React), Backend (Python, Django), Mobile App, Development (Flutter and Dart), Deployment tools: (GitHub, Postman), Vibe coding, Prompt Engineering, Project Management, Solar Farm Management, Research and Technical Writing, Leadership and Entrepreneurship

ONLINE COURSES & CERTIFICATIONS

Cisco: Introduction to Cyber security, Networking Essentials, Html Essential, JavaScript Essential
Coursera: IBM Python for Data science, Development and AI, Foundations of Project Management, Flutter and Dart (packt)

PROJECT WORK IN PRICE

Automation of the Electric Vehicle (Ongoing) - Group work



I am grateful to God for bringing me to PRICE, where He has greatly shaped my life and enlarged my capacity for multitasking, resilience, and multidisciplinary project work. My experience at PRICE has strengthened my spiritual, leadership, and relationship life, while teaching me to live by faith and depend on God through the wilderness experiences of life. Through discipleship, I have gained a deeper understanding of the life of Christ and the process of becoming useful in God's hands. I sincerely thank God and everyone He has used to contribute to my growth and development. God bless you all!



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INSTITUTION ATTENDED
Lagos state university.

COURSE STUDIED
B.Sc Pure Physics

DEPARTMENT IN PRICE
Mechatronics

SKILLS AQUIRED

Robotics and IOT Engineering, Computer Networking and Technical Support, Fabrication, Solar Energy Installation and Maintenance, Electric Vehicle Troubleshooting and Optimization, Project Management, Research and Technical Writing, Public Speaking, Leadership, and Entrepreneurship.

PRICE



ONLINE COURSES & CERTIFICATIONS

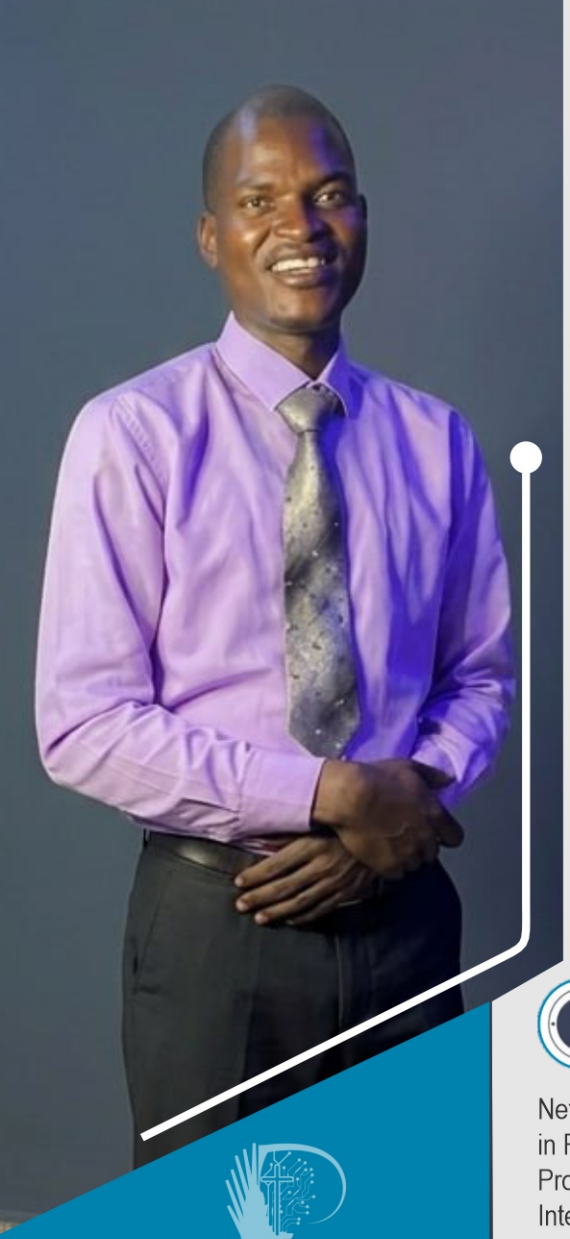
IBM: Introduction to Artificial Intelligence, Python for Data Science and Artificial Intelligence.
Coursera: Introduction to Data Analysis Using Microsoft Excel, Fundamentals of Music and Audio Engineering.
University of Helsinki: Elements of Artificial Intelligence.
Simplilearn: Generative AI Literacy.

PROJECT WORK IN PRICE

Automation of the Electric Vehicle (Ongoing) - Group work

I am glad to have come to PRICE. The experience has been profound, and words can hardly capture the depth of what I have received and experienced here.

I came thinking I was ready to lead a global revolution, perhaps needing only a little icing on the cake for a perfect launch. However, I soon discovered how much I still lacked in experience, integrity, credibility, and capacity for the immense responsibility ahead. Rather than resist the process, I quietly bowed my head and submitted myself to God to undergo this divine process of preparation and transformation.
Today, I can confidently say that I am blessed to have gone through this journey. PRICE has been a place of preparation, shaping, and making, and I am grateful to God for the work He has begun in me.



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INSTITUTION ATTENDED
The Polytechnic, Ibadan

COURSE STUDIED
HND Electrical Engineering

DEPARTMENT IN PRICE
Mechatronics

SKILLS AQUIRED

IOT and Embedded Systems, Solar Power Management and Installation, Welding and Metal Fabrication, Project Management, Health and Safety, Research and Technical Writing, Leadership, and Entrepreneurship.

PRICE



ONLINE COURSES & CERTIFICATIONS

Networking Essentials, Agile Project Management, 3) Applying Project Management in Real World, Computer-Aided Design, Electrical Design Engineer, Foundation of Project Management, Industry 4.0 and Its Impact on Manufacturing Sector, Interfacing with the Arduino, Introduction to Cybersecurity, Introduction to Internet of Things and Embedded Systems, Motor and Control Circuits, Project Execution; Running the Project, Project Initiation; Starting a Successful Project, Project Planning; Putting It All Together, Python for Data Science, AI & Development, Sensor and Sensor Circuit Design, The Arduino Platform and C Programming.

PROJECT WORK IN PRICE

CDesign and Fabrication of an Electric Bike (Completed – Group work)
Design and Fabrication of an Electric Tricycle (Ongoing – Group work)
Construction of a mobile solar-powered tent (Completed – Group work)

My experience at PRICE has been truly life-changing. Through training of the heart, head, and hand, by the Word of God, discipleship, learning resources, and fellowship, I have been nurtured, transformed, and prepared to fulfil God's purpose for my life.

I experienced God's faithfulness in healing and provision, which has strengthened my faith and taught me to trust Him completely. Looking back, I can say that I have tasted the goodness of the Lord in Bethany. My time at PRICE has been a valuable investment in the future God has planned for me, helping me discover the course of my life.



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Ever Anubi

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INSTITUTION ATTENDED
University of Calabar, Calabar

COURSE STUDIED
B.Sc Genetics and Biotechnology

DEPARTMENT IN PRICE
Life and Applied Science

SKILLS AQUIRED

Mathematical Modelling using R, Data Science and Analytics, Basic Python Programming, Research and Technical Writing, Entrepreneurship, Leadership, and HSE.

ONLINE COURSES & CERTIFICATIONS

CISCO: Engaging Stakeholders for Success, Introduction to IoT, Digital Safety and Security Awareness, Introduction to Modern AI, Discovering Entrepreneurship, Data Analytics Essentials, Introduction to Data Science, Network Technician Career Path, Getting Started with Cisco Packet Tracer, Basic Principles of Cell Signalling.
Coursera: Introduction to the Biology of Cancer, Understanding Prostate Cancer, Understanding Cancer Metastasis.

PRICE



PROJECT WORK IN PRICE

Formulation of natural seasoning blend using selected herbs and spices – Ongoing (Group work)

My experience at PRICE has taught me that there is no mistake in God's timing and that He makes all things beautiful in His time. Through the 3Hs training of the HEART, HEAD, and HANDS, I learned to live by faith, seek God's wisdom, and faithfully apply my skills to His purposes and societal transformation.
PRICE also helped me understand that the Christ-life can be expressed in every area of life, whether secular or spiritual. Through the lives and sacrifices of the men and women of PRICE and Living Seed Team, Christ has been formed in me. I remain deeply grateful for their immeasurable labour of love in my life.



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INSTITUTION ATTENDED

Auchi Polythechnic, Auchi- Edo-State

COURSE STUDIED

HND - Computer Science

DEPARTMENT IN PRICE

Information Technology

SKILLS AQUIRED

Python Programming, Mobile App Dev. using Flutter, Vibe Coding, Networking, Solar Farm Management, Research and Technical Writing, Leadership, and Entrepreneurship.

PRICE



ONLINE COURSES & CERTIFICATIONS

CISCO: Introduction to Cyber Security, Introduction to IoT and Digital Transformation, Networking Essentials, Python Essentials 1
Coursera: Introduction to Data Analysis using Microsoft Excel (Coursera)

PROJECT WORK IN PRICE

Development of a Bible-based Chatbot System - Group work

My two years at PRICE were among the wonderful things God planned for me. On many occasions before now, I had almost given up on my studies and myself, PRICE taught me to think more deeply about life and strengthened me to persevere rather than give up.
I also went through the training of my (3H) Heart, Head, and Hands for innovation and learned to stand firmly on my own two feet (discipleship and profession).
I gained brethren at every turn, people who wouldn't let me give up, including in leadership. I also learned to think outside and beyond the box when faced with any problem. And through it all, accommodation, feeding and all that, I had two full years, completely free. To God be the glory!



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Theophilus Adams

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INSTITUTION ATTENDED
University of Jos

COURSE STUDIED
B.Sc Industrial Chemistry

DEPARTMENT IN PRICE
Life and Physical Science

SKILLS AQUIRED

Hydrogen Technology, Laboratory Practices, Engineering Design using Autodesk Inventor, Fabrication, Solar Farm Management, Front-End Programming, Health and Safety, Research and Technical Writing, Leadership, and Entrepreneurship.

ONLINE COURSES & CERTIFICATIONS

Phase Diagrams, Hardening, Polymers, Properties, Hydrogen: Key Concepts and Use in Green Technologies, Introduction to Molecular Spectroscopy, Chemical Hazards: Toxicology & Reactivity, Density Functional Theory, Predictive Models for Toxic Chemical Releases, Introduction to Cloud Computing, Introduction to Software Engineering, Introduction to HSE Engineering, Introduction to Process Safety and Risk Analysis, Getting Started with Cisco Packet Tracer, Risk Management and Industrial Safety, Environmental Protection and Sustainability, Machine Learning for Data Science, Introduction to IoT and Digital Transformation, JavaScript Essentials, Fire and Explosion Hazards Analysis, Networking Essentials, Python for Data Science

PROJECT WORK IN PRICE

Design, optimisation and automation of solar-powered Alkaline Water Electrolyser (Ongoing)
Natural Preservation (Ongoing Group work)
Automated fruit preservation system (Completed Group work)
1. Bio-gas production (Completed Group work)
2. Construction of a mobile solar tent (Completed Group work)



My journey at PRICE has been a transformative experience of faith, perseverance, and growth. Through every challenge, I have been sustained by God's grace, reminded of the truth in Matthew 12:20: "A bruised reed he will not break, and a smouldering wick he will not snuff out, till he has brought justice through to victory." The rigorous training challenged me to remain steadfast, turning difficulties into opportunities for intellectual, technical, and professional growth.

Beyond the technical skills I gained, PRICE deepened my understanding of what it means to live by faith. I have come to realise that "man shall not live by bread alone, but by every word of God." My experience has taught me that life is to be lived in daily dependence on God and His Word. I leave PRICE grateful for the growth, strengthened by faith, and equipped for the journey ahead.



NAME
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INSTITUTION ATTENDED
University of Port Harcourt

COURSE STUDIED
B.Sc Mathematics and Statistics

DEPARTMENT IN PRICE
Mechatronics

SKILLS AQUIRED

App and Web Development, IOT and Embedded Systems, Product Design using Autodesk Inventor, AI Prompt Engineering, Data Analytics, Project Management, Solar Installation and Management, Fabrication, Research and Technical Writing, Leadership, and Entrepreneurship.

ONLINE COURSES & CERTIFICATIONS

Python for Data Science, AI and Development, Data Analysis with R Programming, Master Time Series Analysis with R: Analyse and Predict, How to write and publish a scientific paper (Project Centred Course), Interfacing with the Arduino, Introduction to Artificial Intelligence, Foundation of Project Management, Exploratory Data Analysis for Machine Learning, Machine Learning with Python, Developing the SIR Model, Interventions and Calibration, Introduction to IoT and Digital Transformation, Getting Started with Cisco Packet Tracer, Networking Essentials, Project Initiation: Starting a Successful Project, Project Planning: Putting It All Together, Introduction to Data Engineering, Building on the SIR Model, Flutter and Dart: Developing iOS, Android, and Mobile Apps, Data Analysis with Python, Supervised Machine Learning: Regression and Classification, Experimental Design Basics, ChatGPT Prompt Engineering for Developers, Agile Project Management

PROJECT WORK IN PRICE

1. Automation of the Electric Vehicle (Ongoing - Group work)
2. AI Teacher Assistant App (Completed)
3. Smart Voice-Controlled Home Automation System (Completed)
4. Construction of Ergonomic Chairs (Ongoing - Group work)
5. Automated Mosquito Trapper (Completed)
6. Construction of a Mobile Solar Tent (Completed - Group work)
7. Vital Signs Sensor (Abandoned - Group work)



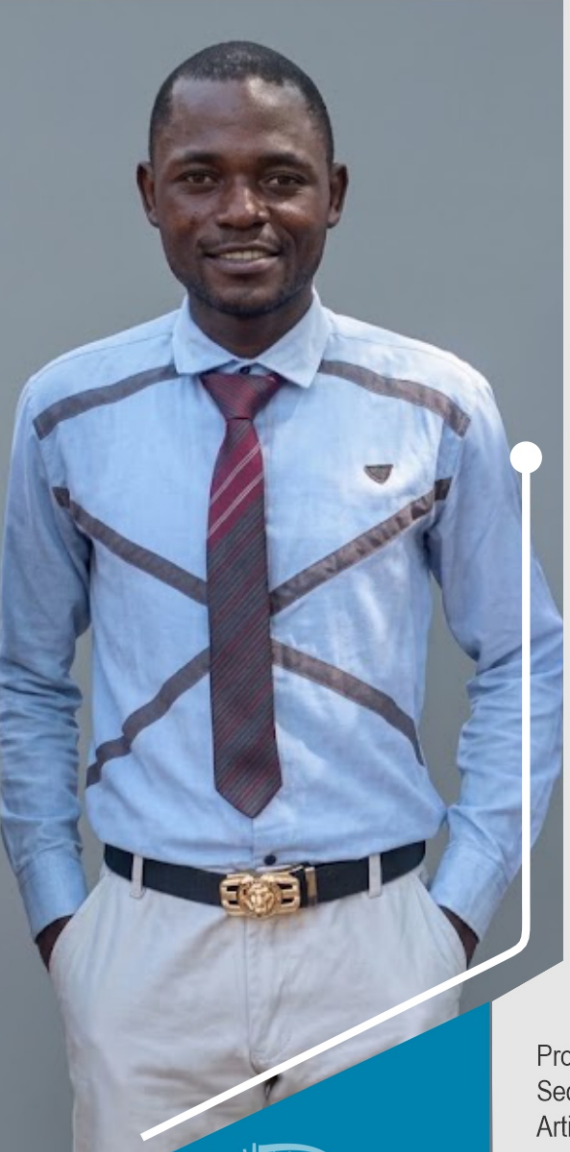
PRICE is indeed an answered prayer. I remember when I came to MLR years before the inception of PRICE. After that encounter, I wished I could be trained both spiritually and professionally at Bethany Resort, and He did it. Yeah! Coming to PRICE was the best decision of my life when I needed rest for my soul the most (Heb. 4:10). The equipping for me is complete—heart, head, and hand.

I have been refocused and given a clear vision of the journey ahead. I now understand, in practical terms, what it means to live by faith in every area of life—looking up to Jesus for project ideas and solutions, praying through each process, seeking His face for provision, and seeing Him come through even when it didn't look like He would.

The Resource Persons didn't just preach; they lived the life.

God bless the PRICE Team.

God bless the Peace House Team.



NAME

Manasseh Shitta Danbeki

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INSTITUTION ATTENDED

University Of Nigeria Nsukka

COURSE STUDIED

B.Sc Computer Science

DEPARTMENT IN PRICE

Information Technology

SKILLS AQUIRED

Hardware Troubleshooting and Repairs, Satellite Installation, AI-Assisted (Vibe) Coding, HSE, Research and Technical Writing, Leadership, and Entrepreneurship.

ONLINE COURSES & CERTIFICATIONS

Project Management, Networking Essentials, Python in Data Science, Basic Cyber Security, Entrepreneurship and Business Development, Introduction to IOT, Basics of Artificial Intelligence, Introduction to Applied Data science, React JS for Beginners.

PRICE

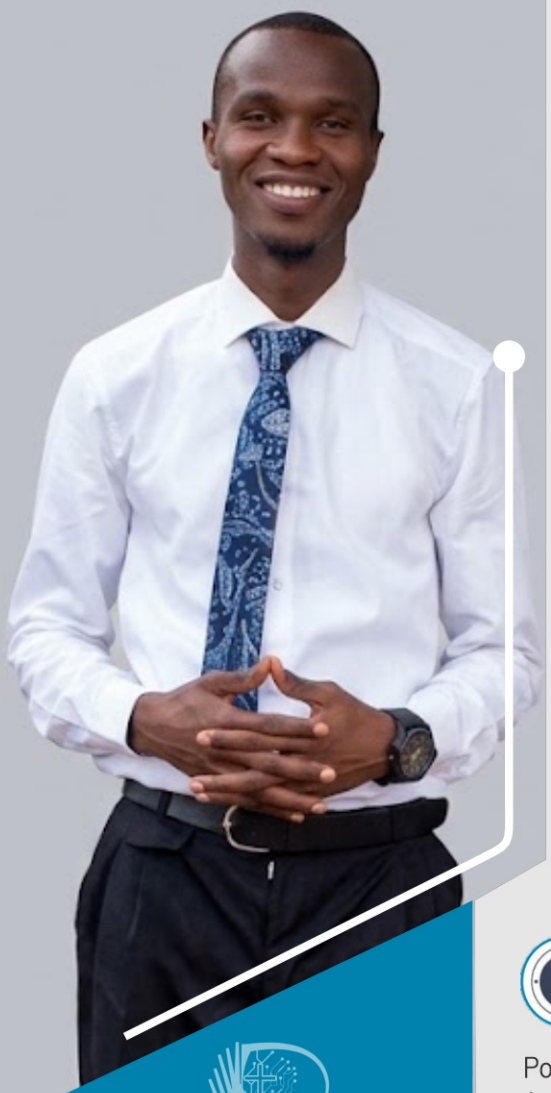


PROJECT WORK IN PRICE

Development of a Bible-based Chatbot System - Group work

My time at PRICE was defined by a strong atmosphere of collaboration, learning, and mentorship. Interactions with fellow interns, staff, and resource persons enriched my academic, professional and spiritual growth, while the supportive environment fostered meaningful intellectual engagement.

Access to reliable, high-speed internet also greatly enhanced my research, collaboration, and project execution. Overall, PRICE provided a unique blend of technical development, meaningful human connections, and a nurturing spiritual atmosphere.



NAME

Harrison Ogheneyoma Onigba

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INSTITUTION ATTENDED

Petroleum Training Institute Effurun, Warri, Delta State

COURSE STUDIED

HND Electrical and Electronic Engineering Technology

DEPARTMENT IN PRICE

Mechatronics

SKILLS AQUIRED

Product Design and UI/UX, Front-End Web Development, Python for Data Analysis and AI, Power BI, Solar Farm Management, Embedded Systems and Arduino, CAD, Data Visualization and Reporting, Research and Technical Writing, Leadership, and Entrepreneurship.

ONLINE COURSES & CERTIFICATIONS

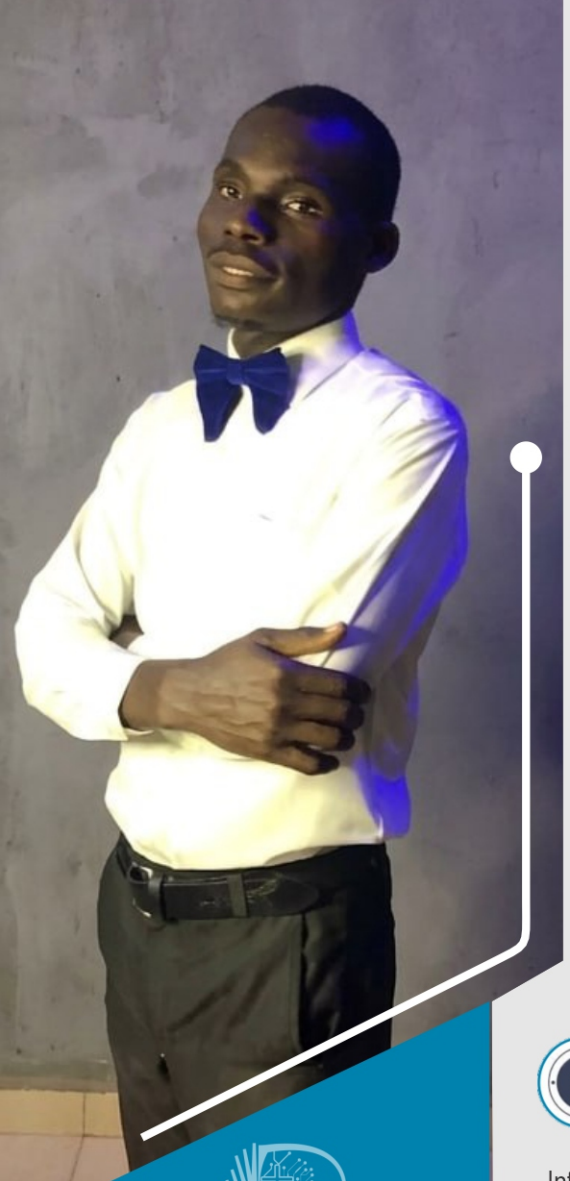
Power BI and Business Intelligence, Cybersecurity Basics, Embedded Systems and Arduino Development, Web Development Front- End(HTML, CSS, and JavaScript), Project Management, Networking Essentials, Data Analytics, Python Programming, R Programming, SIR Modelling, PostgreSQL, Introduction to Figma

PROJECT WORK IN PRICE

Design and Implementation of a Cost-Effective Smart Security Street Light System (Ongoing - Group Work)
Design and Construction of Wind Mill for power generation (Ongoing - Group Work)
Construction of a Cost-Effective Electric Vehicle (Completed - Group Work)
Construction of 5kva mobile solar tent (Completed – Group Work)
Vital Signs (Abandoned)



During my stay at PRICE, one of the major lessons God taught me was contentment. Learning to receive His daily provision with thanksgiving, even when my personal desires were unmet, helped me overcome anxiety and develop humility, patience, and dependence on Him. Whether it was food, personal needs, or access to computers for my studies, God taught me to trust His provision, regardless of the means through which He chose to provide. Looking back, I see how these experiences shaped my character and taught me that His grace and provision are always sufficient. As Scripture says, "godliness with contentment is great gain" (1 Timothy 6:6).



NAME
Taiye Peter Otaru

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INSTITUTION ATTENDED
Bayero University, Kano (BUK).

COURSE STUDIED
B. Eng. Electrical Engineering

DEPARTMENT IN PRICE
Mechatronics

SKILLS AQUIRED

Arduino Programming and Hardware Interfacing, Solar Farm Installation and Management, Welding and Fabrication, Computer Installation, Maintenance and Repair, Project Management, Health and Safety, Research and Technical Writing, Leadership, and Entrepreneurship.

PRICE



ONLINE COURSES & CERTIFICATIONS

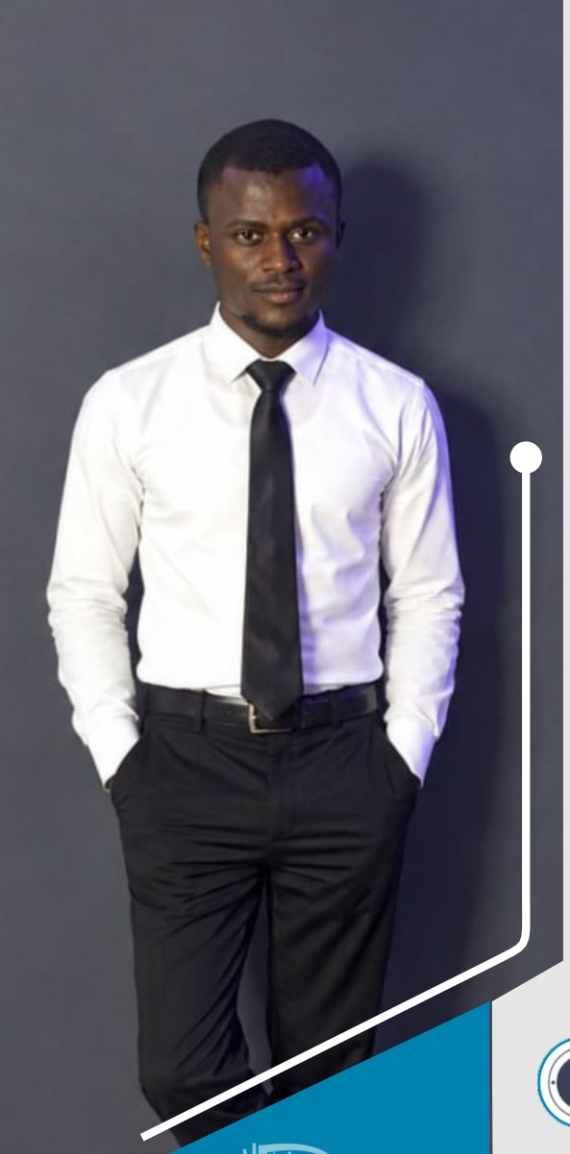
Introduction to the Internet of Things and Embedded Systems, Python for Data Science, AI & Development, Primary and Secondary Batteries, The Arduino Platform and C Programming, Developing the SIR Model, Networking Essentials, Introduction to Cybersecurity

PROJECT WORK IN PRICE

Design and Implementation of a Cost-Effective Smart Security Street Light System (Ongoing - Group Work)
Design and construction of Electric Vehicle (Completed - Group Work)

My experience at PRICE has been a manifestation of God's mercy, providing practical applications of the theories I learned in school and making my journey exciting and fulfilling.

I experienced the practical expression of the Christ-life through problem-solving, ministerial labours, and fellowship. Indeed, I learned how to learn. I wish every youth will experience PRICE!
I am deeply grateful to God, our elders, management, leaders, interns, students, resource persons, and everyone who contributed to this exceptional journey. May the Lord accept your love and sacrifices as a sweet-smelling offering unto Himself. Amen.
God bless PRICE. God bless Nigeria.



NAME

Okeoghenegbare Okorefe

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INSTITUTION ATTENDED

Delta state university, Abraka

COURSE STUDIED

B.Sc Industrial Mathematics

DEPARTMENT IN PRICE

Information Technology

SKILLS AQUIRED

App and Software Development, data analytics, Java Backend Engineering, Vibe Coding, Prompt Engineering, Finance, Solar Farm Management, Research and Technical Writing, Leadership, and Entrepreneurship.

PRICE



ONLINE COURSES & CERTIFICATIONS

Research, Needs Analysis and Learner Empathy; Digital tools, office systems and tech proficiency; Introduction to cybersecurity, Networking essentials, International market analysis and research, Cybersecurity, Digital Frauds and Technological Safeguards, Fundamentals of Project Management.

PROJECT WORK IN PRICE

Development of a Solar Power Management App

Coming to PRICE has been one of the most defining decisions of my life. I arrived raw, undisciplined, and struggling with old habits, having only truly encountered Christ at LEDEYO two months prior.

The transition to PRICE was challenging, but through authentic discipleship, I learned obedience, discipline, teamwork, tolerance, and effective time management, while acquiring critical skills to stand influentially for Jesus.

Most importantly, I witnessed practical examples of what it means to be a child of God. I found the absolute truth and a blueprint for my future. I found real Life at PRICE, and I now have an unshakable purpose.

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NAME
Chibuikem Ezekiel Nwaogu

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INSTITUTION ATTENDED
University Of Nigeria Nsukka

COURSE STUDIED
B. Eng Electrical Engineering

DEPARTMENT IN PRICE
Mechatronics

SKILLS AQUIRED

Solar Power System Installation, Configuration and Maintenance; Fabrication; Engineering Product Design, Simulation and Analysis; 3D Printing; PCB Design; Vibe Coding; Embedded Systems and IOT Using Arduino; Research and Technical Writing; Leadership and Entrepreneurship.

PRICE



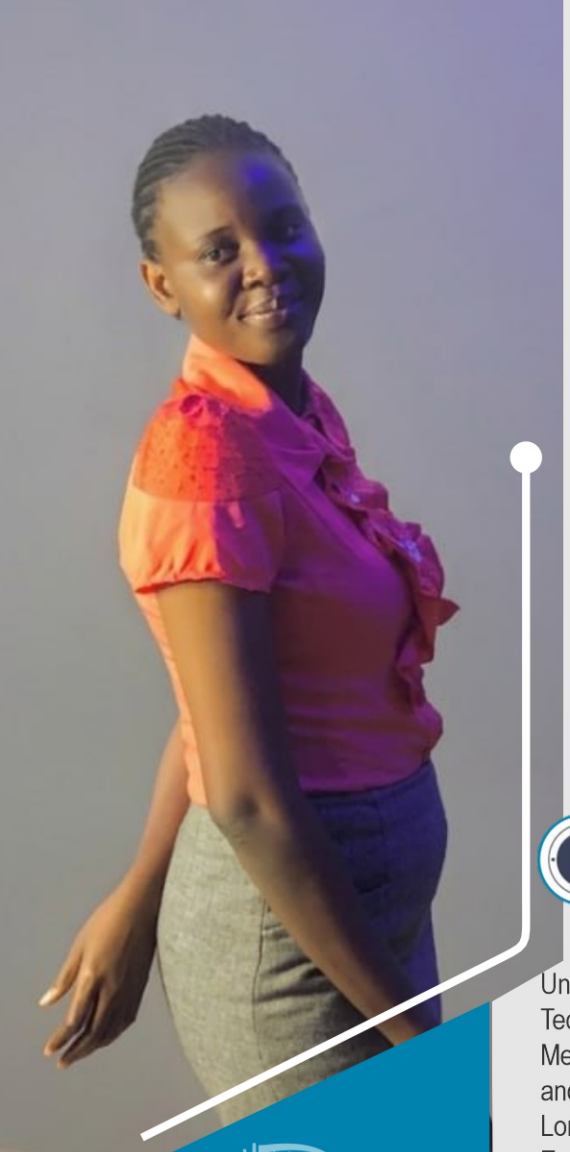
ONLINE COURSES & CERTIFICATIONS

Cisco: Networking Essentials, Packet Tracer, Introduction to IoT, Python Essentials 2, Introduction to Cybersecurity, Ethical Hacker.
IBM: Introduction to AI, Python for Data Science, Development and AI.
Imperial College London: Developing the SIR Model.
Google: Project Management.
BILTS: Linear Algebra for Machine Learning and AI.

PROJECT WORK IN PRICE

Design and Fabrication of an Electric Bike (Completed – Group work)
Design and Fabrication of an Electric Tricycle (Ongoing – Group work)
Automation of an electric car (Ongoing – Group work)
Construction of mobile solar powered tent (Completed – Group work)

Right from the interview phase, I was informed that PRICE is a "military cantonment" and I resumed with that mindset when I was admitted. Even with that in mind, PRICE still wasn't what I expected it to be. It was quite rigorous and demanding (Physically, Mentally and Spiritually). PRICE gave me the opportunity to interact with people from various backgrounds and develop a work culture that accommodates everyone in a team. During the building of the electric vehicle, PRICE gave me the mindset to see beyond the limitations and boundaries before me and be willing to think through the process to arrive at a solution. Another memorable experience I had was The International Centre for Applied Mathematical Modelling and Data Analytics (ICAMMDA) conference which exposed me to how mathematics can be deployed to real life problem solving. In all, coming to PRICE was totally worth it.



NAME
Priscilla Osiekafore Apara

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INSTITUTION ATTENDED
University of Benin, Nigeria

COURSE STUDIED
B.Sc. Medical Biochemistry

DEPARTMENT IN PRICE
Life and Physical Science

SKILLS AQUIRED

Data Collection and Analysis, Basic Programming and Computational Skills, Laboratory Techniques and Good Clinical Practice, Biochemical and Sensory Evaluation, Computer-Aided Drug Design, Research and Technical Writing, Leadership and Entrepreneurship.

ONLINE COURSES & CERTIFICATIONS

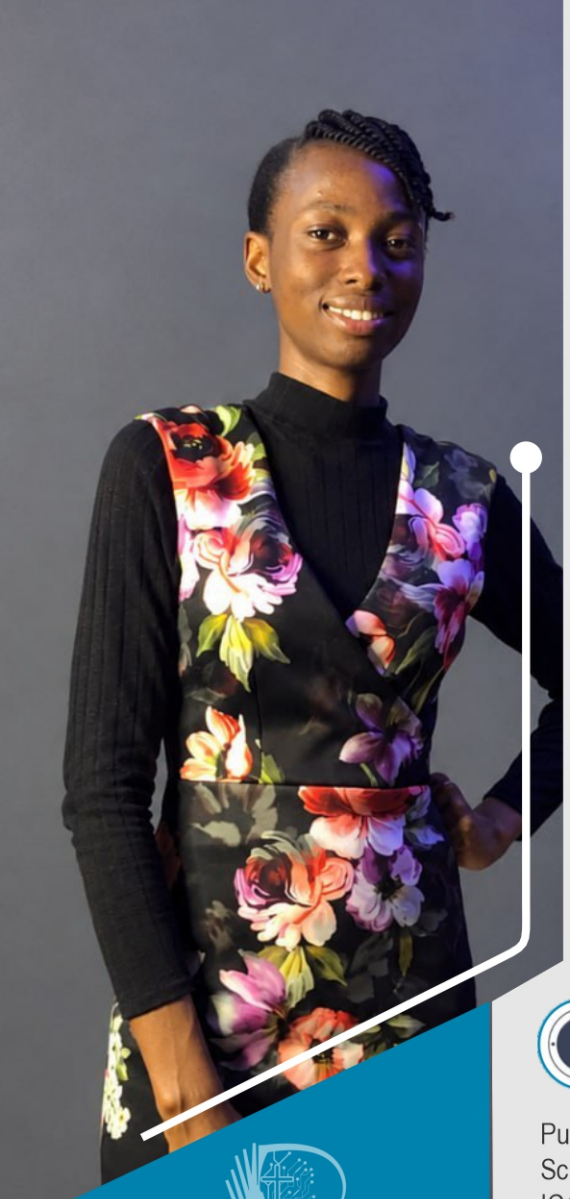
University of Geneva: Precision Medicine, Korea Advanced Institute of Science and Technology: Biochemical Principles of Energy Metabolism, National Academy of Sports Medicine: Optimal Nutrition after 40, The State University of New York: Big Data, Genes and Medicine, IBM: Python for Data Science, AI and Development, Imperial College London: Developing the SIR Model; Cisco: Introduction to Cybersecurity, Networking Essentials.
TOPLAHOLO BIOGENE: Computer-Aided Drug Design (CADD); Data Analysis: Women Techsters Bootcamp; ICAMMDA: Mathematical Modelling and Data Analytics, Introduction to research ethics; Good clinical practice(GCP-E6(R2) 2016); (GCP-E6(R3) 2025)
Training in the Nigerian National Code for Health Research Ethics, Informed Consent, Research Ethics Evaluation

PROJECT WORK IN PRICE

Formulation of natural seasoning blend using selected herbs and spices – Ongoing (Group work)
Calibration and Validation of Neonatal Jaundice Device—Ongoing Group work
Postharvest Handling and storage of orange fruits using locally developed controlled atmosphere storage – Completed (Group work)
Biogas production - Completed (Group work)



My experience in PRICE began with a simple decision to come and see what it was all about, echoing Philip's words to Nathanael in John 1:46: "Come and see." What began as curiosity became a life-transforming journey of learning, unlearning, growth, and refinement. Through the teachings, fellowship and discipleship, I experienced significant spiritual and personal growth.
I gained a deeper understanding of my identity in Christ and learned to live by faith. PRICE taught me that Christ is either Lord of all or not Lord at all, and that every pursuit should be centred on Him. It clarified my specialisation and deepened my sense of purpose, seeing research as a platform to address real-world problems while glorifying God.
The journey was not always easy, but every challenge was worthwhile. Looking back, I can only say, "Hitherto has the Lord helped me." I leave PRICE with a grateful heart, confident that the foundation laid here will continue to guide me.



NAME
Damilola Rebecca Fadahunsi

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INSTITUTION ATTENDED
Oyo State College of Agric. & Tech, Oyo State.

COURSE STUDIED
HND Microbiology

DEPARTMENT IN PRICE
Life and Physical Science

SKILLS AQUIRED

Post-Harvest Technology, Microbial Identification and Laboratory Practices, Infectious Disease Modelling, Computer-Aided Drug Design, Data Analysis, Project and Risk Management, Research and Technical Writing, Leadership, and Entrepreneurship.

ONLINE COURSES & CERTIFICATIONS

Coursera: Microbiology Foundation, Bacteria and Chronic Infections, Antimicrobial Resistance – Theory and Methods, Developing the SIR Model, Foundations in Public Health Practice, Professional in Allied Health, Drug Discovery, Python for Data Science, AI & Development, Foundations of Project Management, Speaking to Inform.
ICAMMDA: Mathematical Modelling and Analytics of Infectious Diseases.
GENOMAC HUB: Comprehensive and Functional Genomics (NGS Data).
TOPLAHOLO: Computer-Aided Drug Design (CADD).
Cisco: Networking Essentials, Operating Systems Basics, Introduction to IoT and Digital Transformation, Introduction to Greenhouse Gas Accounting for IT, CSS, HTML Essentials, Introduction to Cybersecurity.

PROJECT WORK IN PRICE

Evaluation of Tridax procumbens, Moringa oleifera, Azadirachta indica Extracts as Post-Harvest Preservatives for Tomato (Solanum lycopersicum) (Ongoing Group Work).
Automated fruit preservation system (Completed Group work)



My time at PRICE has been a profound expression of God's mercy in my life. Through the abundant teaching and study of God's Word, my eyes were opened to a clearer understanding of what it truly means to live for Christ. Every experience and challenge became an opportunity to learn and unlearn, deepen my knowledge of God, and receive the grace to keep moving forward beyond my time at PRICE. My mindset was reshaped, and I learned practically what it means to live by faith.
As the journey unfolded, I began to see more clearly the wonderful things God had prepared for me. This experience has strengthened my resolve to keep following Him and living according to His purpose. I can confidently say that what I received at PRICE went far beyond my expectations.
I am deeply grateful to the entire PRICE family for being part of this transformative journey. May God bless you all richly.



NAME
Joyce Ushahemba

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enoch239966@gmail.com

INSTITUTION ATTENDED
Benue State University

COURSE STUDIED
B. Sc Plant Science and Biotechnology

DEPARTMENT IN PRICE
Life and Physical Science

SKILLS AQUIRED

Basic Python Programming, Data Analysis using Python and Excel, Post-Harvest Technology, Agricultural Research, Technical Writing, Leadership, and Entrepreneurship.

ONLINE COURSES & CERTIFICATIONS

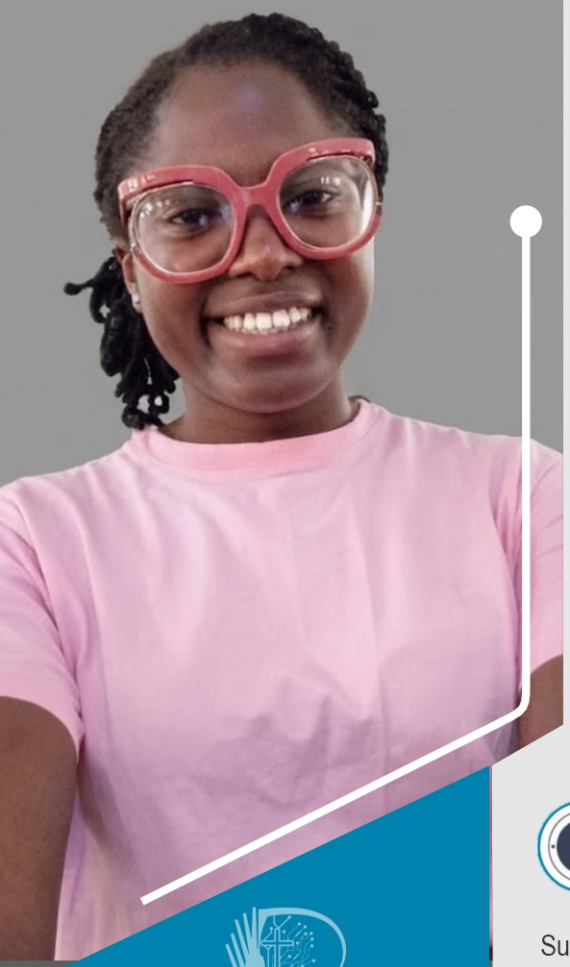
Cisco: Networking Essentials, Python Essentials
IBM: Data Science Professional Certificate; Data Science, Python for Data Science, AI & Development, Databases and SQL for Data Science with Python, Data Analysis with Python, Data Visualization with Python, Machine Learning with Python, Applied Data Science, Generative AI, Data Science Career Guide and Interview Preparation
World Quant University: Applied Data Science Lab
Food and Agriculture Organisation Learning Academy: Agricultural Ecosystem-based Solutions, Global Crop Conservation Strategies, Agroecology for Africa, Introducing Crop Calendars for Climate Adaptation, Tropical Agriculture.
Africa Agility: Data Science and Machine Learning,
Queen's University/Dunin-Deshpande Queen's Innovation Centre: Introduction to Design Thinking, High-Performance Teams.

PROJECT WORK IN PRICE

Evaluation of Tridax procumbens, Moringa oleifera, Azadirachta indica Extracts as Post-Harvest Preservatives for Tomato (Solanum lycopersicum) (Ongoing Group Work).
Automated Fruit preservation system (Completed Group Work)



I sincerely want to appreciate God for His mercies over my life throughout my stay here as a PRICE intern. Living with people from different backgrounds and cultures was quite an experience for me. However, as time went on, I began to see, in the light of God's Word, that whether Jews or Gentiles, we are all one in Christ. This understanding helped me relate better with others. I learned to be more patient, accommodating, and forgiving, just as my Lord would have me be.
Professionally, my experience at PRICE has helped me develop skills in research, writing, leadership, and entrepreneurship, while also enhancing my previous knowledge of Data Science. These experiences have contributed greatly to my resilience and resourcefulness.
Indeed, my hands, head, and heart have been trained for the global stage, God helping me. Amen.



NAME

Oluwadunni Praise Towolawi

EMAIL

ptowolawi@gmail.com

INSTITUTION ATTENDED

University of Jos

COURSE STUDIED

B.Sc Ed Technical Education (Mech Tech)

DEPARTMENT IN PRICE

Mechatronics

SKILLS AQUIRED

Embedded Systems using Arduino and ESP32, IOT, Networking and Cybersecurity Fundamentals, Python Programming, Access Control System Design, Project Management, Industrial Safety, Fabrication, Research and Technical Writing, Leadership, and Entrepreneurship.

PRICE



ONLINE COURSES & CERTIFICATIONS

Sustainability - The Standard Bank Sustainability Academy, Python for Data Science, AI and Development, Google Project Management, Developing the SIR Model - Imperial College London, Introduction to IOT and Digital Transformation, Industrial Safety - Indo German Initiative for Technical Education (IGnITE), Introduction to Cybersecurity, The Arduino Platform and C programming - University of California Irvine, Networking Essentials

PROJECT WORK IN PRICE

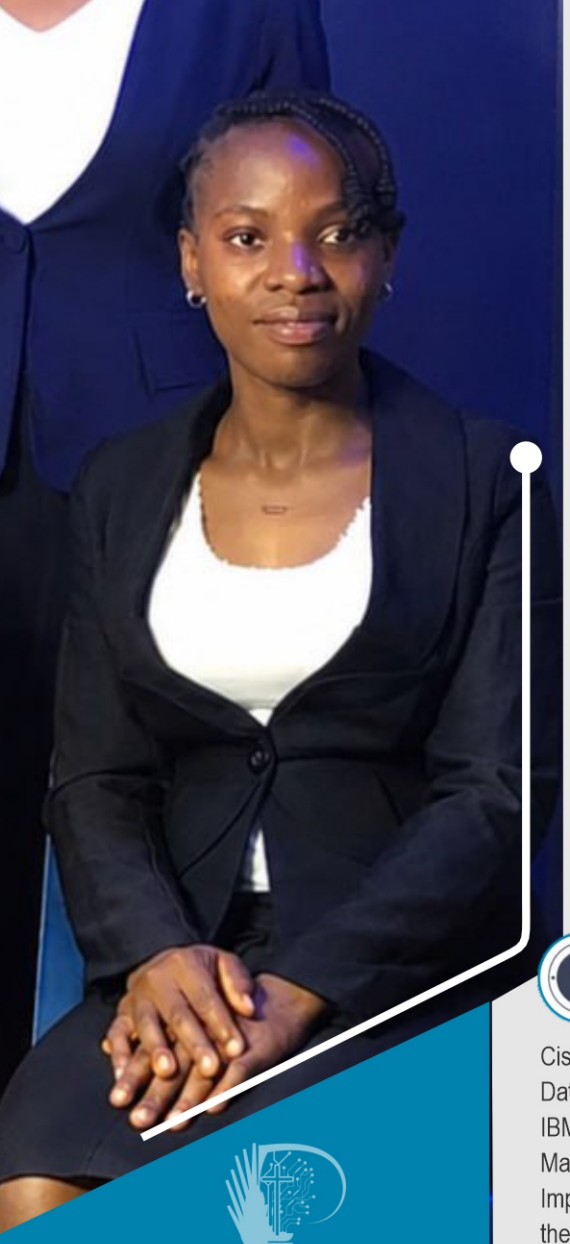
Development of an IoT-based access control system with multi-factor authentication – Completed

Design and development of an Electric Vehicle - (Completed Group work)

PRICE will always be remembered as a very important and transformative phase of my life. Coming to PRICE has, so far, been one of the best decisions I have ever made. I met wonderful people, experienced genuine discipleship, and encountered God in deeply practical ways.

The journey was not always easy. I was stretched, challenged, and at times overwhelmed, but grace was always made available. Through every experience, God continued to strengthen and teach me.

I sincerely appreciate God for bringing me to PRICE and the PRICE management for their investment, guidance, and commitment throughout my journey. I am truly grateful for all that I have received and experienced here.



NAME
Tope Victoria Sunday

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victoriatope46@gmail.com

INSTITUTION ATTENDED
Oyo State College of Agric. & Tech, Oyo State.

COURSE STUDIED
HND Microbiology

DEPARTMENT IN PRICE
Life and Physical Science

SKILLS AQUIRED

Natural Preservation, Microbial Identification and Laboratory Procedures, Data Collection and Analysis, R Programming for Infectious Disease Modelling, Computer-Aided Drug Design, Research and Technical Writing, Project Management, Leadership, and Entrepreneurship.

ONLINE COURSES & CERTIFICATIONS

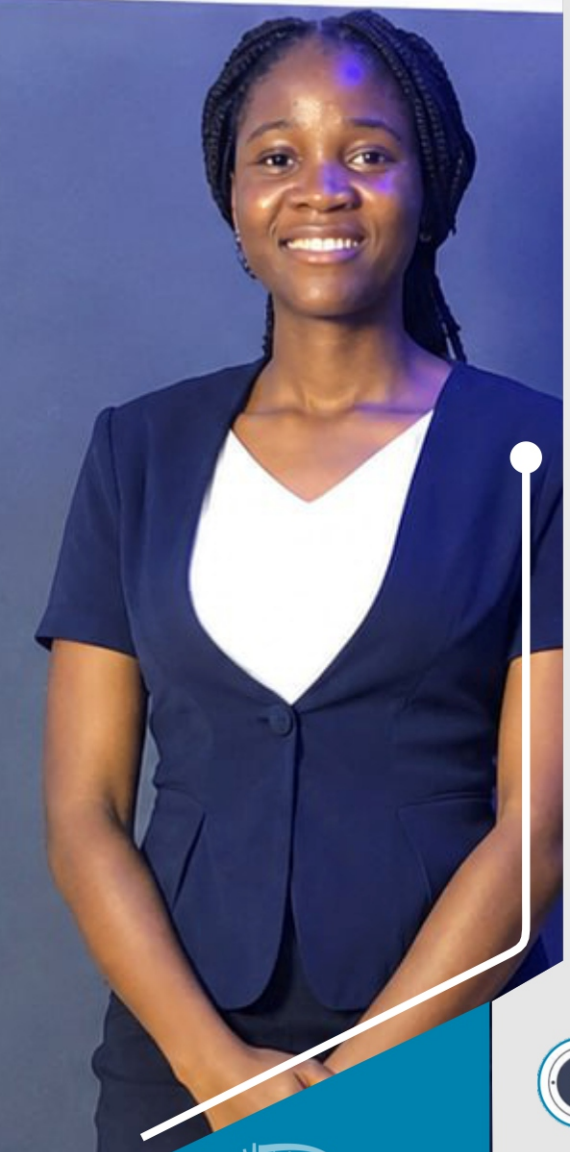
Cisco: Networking Essentials, Introduction to IoT, Introduction to Cybersecurity, Introduction to Data Science, HTML Essentials, CSS Essentials, Python Essentials 1.
IBM: Python for Data Science, Development, and AI; Data Analysis with R; Introduction to Project Management.
Imperial College London: Developing the SIR Model, Interventions and Calibration, Building on the SIR Model, Foundations of Public Health Practice (4 courses).
Google: Project Management Specialisation (6 courses), Accelerate Your Job Search with AI.
Other Courses: Fundamentals of Immunology (4 courses), Fundamentals of Sensors, Drug Discovery, Drug Development, Drug Commercialisation, Antimicrobial Resistance: Theory and Methods, Bacteria and Chronic Infections, Bioinformatics: Introduction and Methods, Developing Innovative Ideas for Product Leaders, Computer-Aided Drug Design, Genomics

PROJECT WORK IN PRICE

Evaluation of Tridax procumbens, Moringa oleifera, Azadirachta indica Extracts as Post-Harvest Preservatives for Tomato (Solanum lycopersicum) (Ongoing Group Work).
Automated Fruit preservation system (Completed Group Work)
Biogas production project (Completed Group Work)



My PRICE journey was not by chance but by divine arrangement. Looking back, I can confidently say that PRICE has been my place of brooding, incubation, refinement, training, and transformation. It became the desert where my faith was strengthened; the barracks where discipline and resilience were built; and the quarry where God carefully shaped and prepared me for His purpose.
Every experience I encountered has contributed significantly to the foundation of my life. Through PRICE, my heart, head, and hands have been intentionally trained with the skills, values, and tools of a true professional. Beyond academic and professional excellence, I have been moulded in character and equipped to become a positive influence in the world.
I am deeply grateful to God for the privilege of being part of this great vision, and among the generation of "Kings and Queens" He is raising to transform society and reveal His glory.



NAME
Chioma Godswill Okafor

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chiomagodswill167@gmail.com

INSTITUTION ATTENDED
Nnamdi Azikiwe University, Awka

COURSE STUDIED
B.Sc Parasitology and Entomology

DEPARTMENT IN PRICE
Life and Physical Science

SKILLS AQUIRED

Research and Technical Writing, Data Cleaning and Visualization, Epidemiological and Mathematical Modelling, Public Health and Infectious Disease Research, Data Integrity and Ethical Research Practices, Foundational Knowledge in Tropical Parasitology, Cancer Biology, Leadership, and Entrepreneurship.

PRICE



ONLINE COURSES & CERTIFICATIONS

Networking Essentials, Introduction to Cancer Biology, Introduction to Research Ethics, Research Ethics Evaluation, Informed Consent, Good Clinical Practice, Nigerian National Code for Health Research Ethics, Essential Epidemiologic Tools for Public Health Practice, Tropical Parasitology: Protozoans, Worms, Vectors and Human Diseases, Developing the SIR Model.

PROJECT WORK IN PRICE

Calibration and Validation of Neonatal Jaundice Device—Ongoing Group work

My internship at PRICE strengthened my research, writing, critical-thinking, data analysis, and problem-solving skills through hands-on work on a neonatal jaundice detection device. I gained practical experience in data wrangling, visualization, Python, introductory machine learning, research ethics, epidemiology, and public health, while conferences and hospital collaborations expanded my professional knowledge and network.

Beyond technical growth, the internship developed my resilience, persistence, time management, leadership, teamwork, and patience. Most importantly, PRICE gave me greater clarity and direction for my life, renewed my sense of purpose, and deepened my walk with God and sensitivity to His leading.













MANAGEMENT		
1	**Bro Gbile Akanni**	**Coordinator, Livingseed Team.**
2.	**Engr Dennis D. Tserga**	**Chairman Governing Board**
3.	**Engr Damilola S. Olufolaji**	**Director**
4.	**Prof. Stephen Akintunde**	**Dean of Faculty**
MECHATRONICS RESEARCH STREAM		
1	**Engr. Damilola Seun Olufolaji** BEng. PGDE	Mechatronics and Information Technology PRICE Head of Mathematics/ICT, Calvary Arrows College, Gboko.
2.	**Prof. Adeoye (Ade) Adegorite** PhD, MBA, MSc, BSc, OND.	Research Methodologies and Project Management PRICE Professor of Engineering Management, McGill University, Management Consultant, Provincial Government of Ontario, Canada.
3.	**Dr Fadoo George Unom** PhD, MSc., B. Eng. NSE.	Mechatronics / Mechanical Engineering PRICE Senior Lecturer, Mechanical Engineering Joseph Sarwuan Tarka University, Makurdi, Benue State, Nigeria.
4.	**Dr Fendji Marie Danielle Epse Fongang** PhD, MSc., BSc.	Mechatronics / Electrical and Electronics Engineering PRICE Lecturer, Electrical and Electronics Engineering University of Buea, Cameroon
5.	**Engr Akinwole Oluwabukola Bamidele** MBA, B. Eng.	Mechatronics / Mechanical Engineering PRICE Regional Sales Manager, Baker Hughes (Brush Power Generation) Saskatoon, Saskatchewan, Canada.
6.	**Mr Adeyemi Olusegun Gbolagade** MEng, BSc. OND.	Mechatronics / Mechanical Engineering PRICE Mathematics Instructor, Calvary Arrows College, Gboko.
7.	**Mr Zacchaeus Oluwafemi Adedokun** MSc, BSc.	Mechatronics / Electrical and Electronics Engineering PRICE Physics and Mathematics Instructor Calvary Arrows College, Gboko.
8.	**Mr Samuel Abiodun Bello** HND, OND	Project Coordinator PRICE Basic Technology Instructor Calvary Arrows College, Gboko.
9.	**Mr Ntino Daniel Benjamin** PGD, HND, OND	Mechatronics / Electrical and Electronics Engineering PRICE
10.	**Mr ThankGod Frankson Eze** BEng, MEng.	Mechatronics / Chemical Engineering PRICE
11.	**Mr Alkali Luke Promise** MEd., BEd., NCE	Mechatronics / Automobile Technology PRICE
LIFE AND PHYSICAL SCIENCES RESEARCH STREAM		
12	**Prof. Olugbenga A. Mokuolu** MBBS, MBA, MD, FWACP (Paed)	Physical and Life Sciences Consultant PRICE *Professor* of Paediatrics, University of Ilorin, College of Health Sciences and Paediatrics and Management Sciences for Health, USA.

		Director, Centre for Malaria and Other Tropical Disease Care.
13	**Prof. Michael Umale Adikwu** PhD M. Pharmacy B. Pharmacy	Physical and Life Sciences Consultant PRICE *Professor* of Pharmaceutics, University of Nigeria, Nsukka, Nigeria. Former Vice Chancelor University of Abuja, Nigeria.
14	**Prof. Pius Mbu Oben** PhD, MSc., BSc.	Physical and Life Sciences / Aquaculture PRICE Professor of Aquaculture and Hydrobiology Former Dean of Studies University of Buea, Cameroon
15	**Prof. Benedicta Oshuware Oben** PhD, MSc., BSc.	Physical and Life Sciences / Aquaponics PRICE Professor of Aquaculture and Fishery Health University of Buea, Cameroon
16	**Dr. Funsho Ogunshola** PhD, MSc., BSc (Honours), BTech.	Physical and Life Sciences / Research Methods PRICE Senior Researcher, Ragon Institute of MGH, MIT, and Harvard, Boston, USA.
17	**Dr. Ebenezer Ojo** PhD, MSc., BTech CEng, MIChemE, FHEA, PMP	Physical and Life Sciences / Research Methods PRICE Principal Information Analyst, NHS, Scotland.
18	**Dr. (Mrs.) Patience Abidemi Omololu** PhD, MTech, PGD, PGDE, BSc.	Physical and Life Sciences /Agricultural Biochemistry PRICE Director, Peace House Agricultural Training Institute, Isarun, Ondo State, Nigeria.
19	**Dr. Imoniche Adeoye** MBBS FWACS (Orth)	Physical and Life Sciences Consultant Senior Consultant Orthopaedic and Trauma Surgeon University College Hospital, Ibadan.
20	**Mrs Comfort Seun Ajaelu** MSc., BTech	Physical and Life Sciences PRICE Lecturer, Biomedical Engineering University of Ibadan, Oyo State, Nigeria.
21	**Mrs. Gbolagade Folake Deborah** MTech, PGDE, BSc.	Physical and Life Sciences / Biochemistry PRICE Head of Sciences / Chemistry Instructor Calvary Arrows College, Gboko.
22	**Dr. Ezekiel Gube Ibrahim** PhD, MSc. BSc.	Physical and Life Sciences / Analytical Chemistry PRICE Senior Lecturer, Department of Chemistry University of Jos, Nigeria
23	**Dr Isaac Olufemi Oluwaleye** PhD, MSc., BSc.	Physical and Life Sciences / Chemical Pathology PRICE
24	**Mr Caleb Olugbotemi Ibironke** MSc., BTech	Physical and Life Science / Environmental Biology and Parasitology PRICE
25	**Mr Yinka Omoniyi Elusanmi** MSc., BSc.	Physical and Life Science / Zoology PRICE

26	**Mrs Deborah Onyekachukwu** MSc., BSc.	Physical and Life Science / Environmental Management PRICE
27	**Dr. Babatunde Moses Ojegbile** PhD, MSc., BSc.	Physical and Life Science / Geoinformatics (Environmental Monitoring) PRICE
INFORMATION TECHNOLOGY RESEARCH STREAM		
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