

CURRICULUM VITAE : FARIRAI FORTUNATE

Profession: Senior Renewable Energy Engineer/Chemical Engineer
Date of Birth: 14 February 1985
Nationality: **Zimbabwean**

KEY QUALIFICATIONS :

Fortunate Farirai is a registered Professional Engineer with the Zimbabwe Institution of Engineers and Engineering Council of Zimbabwe. She is a Renewable Energy Expert and just completed studying PhD in Engineering with the University of Witwatersrand Johannesburg South Africa. Her research focused on production of materials from waste suitable for use in solar cell material. She is a holder of MSc in Renewable Energy Engineering and BSc Honours in Chemical Technology. She also holds a Certificate in Effective Use of Energy Resources from Peoples Friendship University Moscow Russia. In 2018 she spearheaded the formation and the Launch of the Organization for Women in Science for the Developing World Zimbabwe National Chapter and she is the Inaugural National Chapter Chair. She is proactive in Women in Science. In early 2019 she have influenced Namibia, Zambia, Botswana, Mozambique and Malawi to apply for their OWSD National Chapters with the vision to unite women in Science in the Southern Africa

EDUCATION :

2017-2019	PhD in Engineering University of the Witwatersrand, Johannesburg, South Africa
2011-2013	MSc in Renewable Energy University of Zimbabwe, Harare, Zimbabwe
2004-2008	BSc Honours in Chemical Technology Midlands State University

LANGUAGES: (Excellent, Very good, good, fair)

	<i>Spoken</i>	<i>Read</i>	<i>Written</i>
Shona	Excellent	Excellent	Excellent
English	Excellent	Excellent	Excellent

PROFESSIONAL MEMBERSHIPS:

Member:

- Zimbabwe Institution of Engineers: (ZIE165977)
- Engineering Council of Zimbabwe: (15044)
- Organization for Women in Science for the Developing World, OWSD International
- Organization for Women in Science for the Developing World Zimbabwe National Chapter-National Chair
- Toastmaster International
- Business Council for Sustainable Development
- Renewable Energy Association of Zimbabwe
- Associate Member of Zimbabwe Academy of Sciences

AWARDS & FELLOWSHIPS

- Distinguished Women in Industry and Academia Award at the 2nd African Industrial Engineering and Operations Management Conference, December 2020.
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- Open Africa Power Programme January –June 2020
- Wits PhD Postgraduate Merit Award 2018-2019
- 2nd Best Grad Flash Wits Cross Faculty Research Symposium September 2019
- 11th UNESCO Youth Forum Participant November 2019
- UNESCO/ISED co-sponsored fellowship on Sustainable Energy Development October 2015
- International Renewable Energy Summer School for Young Scientists from East and Southern Africa July 2015
- 2nd Prize Midlands Province Best Young Exhibitor, September 2007
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PROFESSIONAL ACTIVITIES:

Since 2018 Project team member for the Zimbabwe National Geospatial and Space Agency (ZINGSA) under the Ministry of Higher and Tertiary Education Science Technology Development for Biomass and Solar Energy Mapping for Zimbabwe.

Since 2013 Member of the Petroleum and Solar Photovoltaic Technical Committee for Development of Standards (Standards Association of Zimbabwe)

SUMMARY OF EXPERIENCE:

Founder & CEO, Sustenergy, Harare
JUNE 2020 — PRESENT
Co-Founder & Director, Wise Petroleum, Harare
JANUARY 2015 — PRESENT

H2Atlas Africa Project Team Leader, Zimbabwe, SASSCAL, SACREEE, Forschungszentrum Jülich
AUGUST 2020 — PRESENT

Individual Contract-UNDP Development of solar thermal technology roadmap and implementation plan project proposal for Zimbabwe JANUARY 2021-MAY 2021.

Alternate Team leader, Development of National Energy Efficiency Policy for Zimbabwe, September 2020 to May 2021.

Senior Research Energy Engineer, Energy Technology Institute,
Scientific and Industrial Research and Development Centre SIRDC,
Harare
MARCH 2012 — JULY 2020

PUBLICATIONS :

Book Chapter and Journals:

1. Farirai, F., Shonhiwa, C., Mupa, M. and Daramola, M.O. (2019) Compositional Analysis of Zimbabwean Sugarcane Bagasse Ash towards Production of Nano Silicon for Solar Cell Application. In Valorization of Biomass to Value-Added Commodities. M.O Daramola and A.O Ayeni, Eds. Springer Nature Publisher.
2. Farirai, F., Ozonoh, M., Aniokete, C.T., Eterigho-Ikelegbe, O., Zeyi, B., Mupa, M. and Daramola, M.O. (2020) Methods of Extracting Silica and Silicon from Agricultural Waste Ashes and Application of the Produced Silicon in Solar Cells, A mini-review. International Journal for Sustainable Engineering, DOI: 10.1080/19397038.2020.1720854.
3. Farirai, F., Mupa, M., Daramola, M.O. (2020) An improved method for the production of high purity silica from sugarcane bagasse ash obtained from a Bioethanol Plant Boiler. Particulate Science and Technology, DOI: 10.1080/02726351.2020.1734700
4. Farirai, F., Airo, M.A., Otieno, F.O., Mupa, M. and Daramola, M.O., Sugarcane bagasse ash derived nano silicon for application in organic-inorganic hybrid solar cell (submitted).

Referred Conference Proceedings:

1. Farirai, F., Shonhiwa, C., Mupa, M. and Daramola, M.O., Sol-gel Coupling Adsorption Method for Extraction of High Purity Silica from Sugarcane Bagasse Ash for Solar Cell Application. Poster Presentation. 27th European Biomass Conference and Exhibition, p.1436-1438. ISBN 978-88-89407-19-6, DOI: 10.5071/27th EUBCE 2019-3DV.4.17. 27-31 May 2019, Lisbon, Portugal.
2. Farirai F., Airo, M.A., Sadare, O., Mupa, M. and Daramola, M.O., Magnesian reduction of silica from sugarcane bagasse ash into silicon for solar cell application: A Preliminary Investigation. 6th Southern Africa Solar Energy Conference. 25-27 November 2019. East London, South Africa.

Presentations:

1. Farirai F., Shonhiwa, C., Mupa, M. and Daramola, M.O., Compositional Analysis of Zimbabwean Sugarcane Bagasse Ash towards the Production of nano silicon for solar cell application. Oral

Presentation. 12th Zimbabwe International Research Symposium. 13-15 February 2019. Harare, Zimbabwe.

2. Farirai, F., Mupa, M., Daramola, M.O., Sol-gel Coupling Method for Extraction of High Purity Silica from Sugarcane Bagasse Ash for Solar Cell Application. Grad Flash Presentation. 10th Cross Faculty Postgraduate Research Symposium. 3-4 September 2019, University of Witwatersrand, Johannesburg, South Africa (2nd Prize Faculty of Engineering and the Built Environment).

3. Farirai, F., Airo, M.A., Otieno, F.O., Mupa, M. and Daramola, M.O., Sugarcane bagasse ash derived nano silicon for application in inorganic-organic hybrid bulk heterojunction solar cells. Oral Presentation. Seminar. 21 November 2019, Department of Physics, University of Catania, Sicily, Italy.

REFEREES :

References		
Referee	Contact details	Position and Company
Michael O. Daramola	Michael.daramola@wits.ac.za mikykydara@gmail.com +27117177536	Head of Department, Chemical Engineering University of Pretoria Visiting Professor University of Witwatersrand
Mathew Mupa	mathewmupa@gmail.com +263773435988	Lecturer Bindura University of Science Education
Engelbert Kapuya	engelbert.kapuya@gmail.com +263775254868	Lecturer Chinhoyi University of Technology
Chipo Shonhiwa	shonhiwachipo@gmail.com +263779550393	Chairperson- Engineering and Physics Department Bindura University of Science Education