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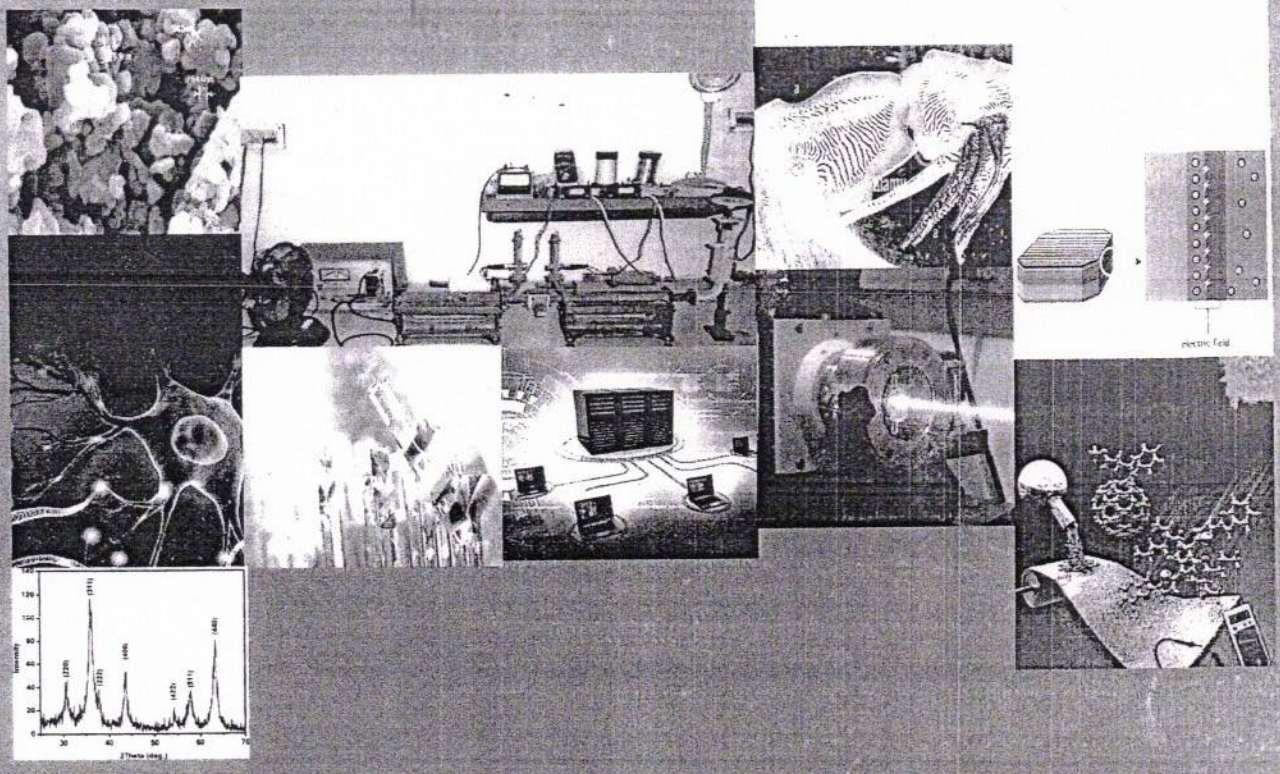

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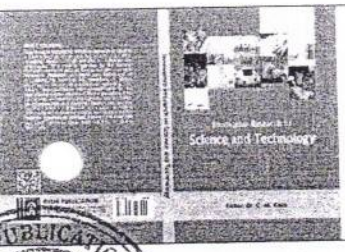

Innovative Research in
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Letter of Gratitude

To,
Dr. R. B. Kavade
Department of Physics,
Bhagwan Arts, Commerce and Science Mahavidyalaya,
Ashti, Dist. Beed, (M.S.)-India

Sub: Letter of appreciation regarding your contribution as a **reviewer.**

Dear Sir,

With reference to the subject cited above, I kindly state to you that a valuable book in the faculty of science entitled, "**Innovative Research in Science and Technology**" bearing **ISBN No. 978-81-951034-5-4**; reviewed by you. The book is published on 28 Feb. 2022 on the occasion of National Science Day. So, I am thankful to accept my invitation and play the role of a **reviewer.**

So, I express my sincere gratitude for your invaluable contribution to this academic enterprise.

Thanks with warm regards

Dr. Surekha S. Lakkas
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Innovative Research in
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An Edited Book (ISBN: 978-81-951034-5-4)

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Innovative Research in
Science and Technology
(An Edited Book)

Renewable Energy Sources and its Applications

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ABSTRACT

Energy is that the basic requirement for human life. Actually agriculture, industry, transportat communication and every one other economic activity consume an outsized amount of energy. Ove development of a nation is judged from the quantity of energy it produces and consumes in reference t size & population. Most of the world's energy sources are derived from conventional sources-fossil f like coal, oil, and natural gases. These fuels are often termed non-renewable energy sources. The avail quantities of those fuels are extremely large but finite then within the future renewable energy sou should be used. Renewable energy sources also called non-conventional energy are sources that continuously replenished by natural processes. for instance , solar power , wind energy, bio-energy fuels, hydropower etc., are a number of the samples of renewable energy sources A renewable ene system converts the energy found in sunlight, wind, falling-water, sea waves, geothermal heat, or bion into a form, we'll use like heat or electricity. Most of the renewable energy comes either directly indirectly from sun and wind and should never be exhausted, and thus they're called renewable.

Keywords: *Renewable Energy, Solar, Wind, Hydro, Bio-power.*

1. INTRODUCTION

Present energy consumption patterns are unsustainable leading to a large scale destruct of environment and natural capital resources of earth. At present most of the energy needs are through fossil fuels and oil. Therefore developing countries are dependent on oil imports for t energy needs. The Electricity supply in rural areas of India is abysmal. Though the govt succeeded in providing electricity to large groups of Indian villages through Grid ba electricity, the availability has its limitations. Indian villages suffer with rampant power cuts illegal power usages. At present there are about two billion people without access to electric Therefore there is an urgent need all over world to tap renewable energy sources.

2. RESULTS AND DISCUSSION

i) Solar Energy

Solar energy is that the most readily available and free source of energy. Solar energy often utilized through two different routes, as solar thermal route and solar electric (s photovoltaic) routes. Solar thermal route uses the sun's heat to supply predicament or air, c food, drying materials etc. Solar photovoltaic uses sun's heat to supply electricity for ligh home and building, running motors, pumps, electric appliances.

Solar Thermal Energy Application: In solar thermal route, solar power is often conve into thermal energy with the assistance of solar collectors and receivers referred to as solar ther devices. The Solar-Thermal devices are often classified into three categories: Low-Grade Hea Devices-up to the temperature of 100°C. Medium-Grade Heating Devices-up to the temperatur 100°-300°C High-Grade Heating Devices -above temperature of 300°C. Low-grade solar ther devices are utilized in solar water heaters, air-heaters, solar cookers and solar dryers for dome and industrial applications. Most solar water heating systems have two main parts: a solar dish a tank. The most common collector is named a flat-plate collector. It consists of a skinny, rectangular box with a transparent cover that faces the sun, mounted on the roof of buildin home. Small tubes run through the box and carry the fluid-either water or other fluid, lik antifreeze solution – to be heated. The tubes are attached to an absorber plate, which is pai