

**RICE,
IT'S SUSTAINABLE
PRODUCTION & MANAGEMENT,
KEY TO FOOD SECURITY**



DISSERTATION PRESENTED BY LAXMIKANT VISHNU PARNERKAR

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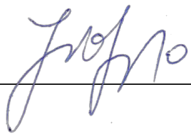
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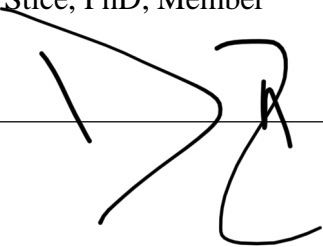
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DEDICATION

This Dissertation is dedicated to my grandfather, eminent philosopher, and noted economist Dr R.P. Parnerkar who propounded the doctrine of Pure Economics in the 1960s, & to my father, an eminent philosopher and economist in his own right, Adv. Dr. V.R. Parnerkar successfully experimented and demonstrated the principles of Pure Economics to the entire human race.

I would like to mention specifically the three words quoted by my father, Adv. Dr V. R. Parnerkar, during his acceptance of the honorary Doctor of Letters (D.Litt.) degree conferred upon him at the hands of the Hon'ble Vice President of India, at Pune in March 2018- "Food for All, Mother Earth and God", these concluding remarks made by him at the end of the convocation ceremony have been my inspiration behind this research.

ACKNOWLEDGMENTS

Throughout the doctoral journey, I have many people to thank for supporting me. Firstly, I want to thank God for the enablement to complete the doctoral degree. Secondly, I would like to thank the supervisor and dissertation chair of my research, Professor Dr Derrald Stice, for his continuous support, advice, comments and critics, and encouragement throughout this dissertation's development. Thank you, Professor. It would have been impossible to complete the research work without your guidance.

I am also grateful and indebted to my father Adv. Dr V. R. Parnerkar, my wife and my family, and my office colleagues and staff for granting me the opportunity to study at a high-caliber business school, and all the doctoral students and colleagues for their contribution during the study. Moreover, I would like to thank the staff at Upgrad, India for offering valuable insights into my work and providing case studies from the business school to support me in writing this dissertation.

CERTIFICATE

This is to certify that the work contained in the thesis entitled “RICE, ITS SUSTAINABLE PRODUCTION & MANAGEMENT, KEY TO FOOD SECURITY”, submitted by Laxmikant Vishnu Parnerkar.

Presented to the Swiss School of Business and Management Geneva with partial fulfilment of the requirement for the Degree of DOCTOR OF BUSINESS ADMINISTRATION.

This work is a record of Bonafide research works carried out by her under my direct supervision and guidance. I considered that the thesis has reached the standards and fulfilling the requirements of the rules and regulations relating to the nature of the degree. The contents embodied in the thesis have not been submitted for the award of any other degree or diploma in this or any other university.

Date:

Place:

Signature:

ABSTRACT

“Until and unless a man has to earn his bread and butter at the mercy of others, humanity will remain shackled” – Dr. R. P. Parnerkar

Food is the basic requirement for all living organisms to live life. Access to sufficient amounts of safe and nutritious food is key to sustaining life and promoting good health. We receive energy from food for varied activities, growth, and all bodily functions such as breathing, digesting meals, and staying warm. But one can observe that there are millions of people who do not possess the basic right to have food. Their inability to buy food has given rise to many problems. Malnutrition, problems relating to physical and mental health. In the year 2020, almost 811 million people worldwide went to bed hungry every night (World Health Organization Report, 2021). The horrifying statistics showcase the figure which increased to 957 million people in 2021 (UN Food Summit Report 2021). The research focuses on finding the solution to end the hunger crisis. The arena of research will revolve around how feeding people rice three times a day can reduce hunger problems and hunger-related stress for individuals and whether feeding people rice three times a day can be proved cost-effective and feasible to be scaled up to a larger scale? One grain, Rice is the sustainable solution for satisfying the hunger is the hypothecation of my research and study. The study will showcase all the aspects concerning the hypothesis. Rice can be consumed as a staple, and additionally, it will be cost-effective. My study and research postulate that based on the availability of the data given by the government and the recognized institutes, the hunger crisis can be cured if rice will be provided as a complete and sustainable meal. The need to consume food can only be stated and understood by those who go to bed hungry. Rice can prove a beneficial effort in reducing the hunger crisis.

As rightly said “One cannot think well, love well, sleep well if one has not dined well.” -
Virginia Wolf. (From her book- Room of One’s Own).

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LIST OF ABBREVIATIONS

SNAP	Supplemental Nutrition Assistance Program
USDA	U.S. Department of Agriculture
WIC	Special Supplemental Nutrition Program for (Women, Infants, and Children)
ORS	Oral Rehydration Solution
WHO	World Health Organization
UN	United Nations
POU	Prevalence of Undernourishment
FAO	Food Agriculture Organization
ESRI	Environmental Systems Research Institute
BBC News	British Broadcasting Corporation News
BCG Report	Boston Consulting Group Report
IRRI	International Rice Research Institute
WWII	World War II
UK	United Kingdom
FAS	Food and Agricultural Summit
FNRI	Food and Nutrition Research Institute
GHI	Global Health Index
FDPIR	Food Distribution Program on Indian Reservations

FSN	Food Security and Nutrition
WFP	World Food Program
ERS	Economic Research Service
CGIAR	Consultative Group for International Agricultural Research

CHAPTER 1. INTRODUCTION

- 1.1 Introduction
- 1.2 Background
- 1.3 Motivation
- 1.4 Research question and problem
- 1.5 Objective
- 1.6 Significance of research

1.1 Introduction

“Food in exchange for labour is the biggest mistake made in the history of economics.”

- Dr R.P. Parnerkar

Food in exchange for labor created complications in society and led to extreme starvation of humankind for centuries. Those who possess the means to buy the food can consume it, and those who could not buy food generally went to bed hungry. The importance of food is difficult to understand for those who consume three meals a day and do not need to worry about it the very next day.

The right to have dignified life is reflected in Fundamental rights under Article 21 of the Constitution of India. Specifically, the right to food is not enumerated under the fundamental rights. Thus, the right to have food should be given as a fundamental right under the Constitution of India under Article 21 i.e. Without the right to food, the right to life is a mockery of a fundamental right. It can be observed that starvation constitutes a gross denial and violation of the right to life.

There is no substitute for food. Since the beginning of time, food has been one of man's most fundamental necessities, alongside air, water, clothing, and shelter. The American writer and novelist Pearl S. Buck (1892-1973) famously quotes “Food for all is a necessity. Food should not be merchandise, to be bought and sold as jewels are bought and sold by those who have the money to buy. Food is a human necessity, like water and air, it should be available.”

1.2 Background

The use of diesel and gasoline is required for driving a car. Similarly, food is one of the key necessities for a living thing to thrive. When I came across the horrible reality and facts regarding millions of people going to bed hungry, The desire to find a solution that will be beneficial in a practical world, as well as cost-effective and manageable by state authorities. The research and study presented in this thesis not only explain the importance of grain, and rice but also put forth research on how rice can be a sustainable and cost-effective solution for reducing the hunger crisis.

1.3 Motivation for thesis

Food deprivation can cause people to act rashly and irrationally, having long term effects on their physical as well as mental health. The motivation behind this thesis initiated from the time when I was in college pursuing my higher education, I used to live in a hostel with my eight classmates, who were also my hostel companions. We were unable to pay for expensive restaurant food regularly as we were paying for other important expenditures such as our tuition fees and

rent. We used to cook khichadi for our daily meals. For about seven to eight years we all relied on khichadi. We experimented with several khichadi recipes and used to cook khichadi using pure ghee. I was able to comprehend how it feels to go to bed hungry if I had to go without a meal for even a single day.

Satiated individuals perform better and can survive in the world, and because of khichadi, my friends and I always had the nutrition and energy for the day. Khichadi proved to be of great assistance when we were facing some hurdles regarding our expenses. In my college days, I was studying, working, and even participating in sports and extracurricular activities and never felt incapacitated for not having the other grains in my meal. Khichadi proved beneficial in providing me with the khichadi helped me by giving me the energy I needed to go through the day's activities and still feel good at the end of it.

Thus after encountering the world food hunger crisis, I attempted to investigate and created a solution based on my college experiment with khichadi. I started researching with this motivation and started studying regards to how providing a single grain can satiate the hunger of people who have to go to bed hungry merely because they do not possess the means to buy it.

1.4 Research questions and problem

Various constitutions across the world have upheld explicitly the right to life. Article 21 of the Indian Constitution and similarly Article 2 of the UK Human Rights Act, 1998 enlist the right to life. But the right to life per se without guaranteeing the right to food universally is largely an ineffective piece of legislation when a large part of the global population is malnourished and being

deprived of its basic necessity of food and left to fend for itself.

The research revolves around the research questions like **whether feeding people rice three times a day can reduce hunger problems and hunger-related stress for individuals?** And **whether feeding people rice three times a day cost-effective and feasible and can it be scaled up to a larger scale?**

The hypothesis is based on the participation of 500 people in Project Rice and their feedback regarding the same. Project Rice will pave my research in understanding the research questions more accurately with a practical experiment like this which will give me an empirical value to my research as well.

1.5 Objective of the research

The objective behind this study is purely based on finding a sustainable solution for reducing hunger and controlling the hunger induced stress. Hopefully, my research will be a start for this initiative of reducing hunger crisis. By putting forward the statistical analysis I want to showcase how practically this Project rice can also be up scaled into a larger project, considering its cost effectiveness.

1.6 Significance of research

The study led me to understand that there are almost 957 million people in the world who face food hunger regularly. The sad reality is that I observed that there is enough production of food in the world to curtail hunger problems but due to wastage, the perishable nature of food, higher cost of distribution, and many other reasons which led to the unavailability of food to needy people.

In my search for a sustainable answer to this question, I came across a simple source of nutritious, inexpensive and wholesome grain that the world has known and consumed for generations immemorial- Rice. The French chef, restaurateur, and culinary writer Auguste Escoffier famously quotes- “Rice is the best, the most nutritive and unquestionably the most widespread staple in the world.” The ancient Indian sage and physician Sushruta has given the status of grain (dhanya) only to rice and called all other grains like wheat lesser or minor cereals (kudhanya) in his Sushruta Samhita (Circa 800 BCE). The Sanskrit word “Annam” for Food also means Rice! Rice is known as the grain of life. In addition to being a staple food in almost all Asian countries, it also constitutes an integral part of social rites, rituals, and festivals highlighting the importance of food as an everyday necessity. Rice has medicinal value too. Rice has been the main constituent of the life-saving Oral Rehydration Solutions (ORS) that have been used for this purpose since times immemorial. Rice-based ORS is reported to be better than glucose-based ORS and has been included in World Health Organization (WHO) recommendations. My research will be useful in understanding and implementing a solution for consuming rice as a staple food for the basic survival.

CHAPTER 2. REVIEW OF LITERATURE

- 2.1 Introduction
- 2.2 Literature review
- 2.3 Statistical Data
- 2.4 World Hunger
- 2.5 Reasons for hunger
- 2.6 Impact of hunger
- 2.7 Contributions towards eradicating world hunger
- 2.8 Country wise contribution

2.1 Introduction

Every day, the hunger crisis and along with it the hunger induced stress problem is worsening and it is now prevalent across the globe. Among human activities, consumption of food is one of the fundamental, connected both to survival and social life. Many people in the world abstain from achieving proper three meals a day due to various factors like not possessing the means to buy, wars and conflict, natural calamities etc.

In the year 2020, almost 811 million people worldwide went to bed hungry every night (World Health Organization Report, 2021). The horrifying statistics showcase the figure which increased to 957 million people in 2021 due to the global pandemic (UN Food Summit Report 2021).

Rice has supported a greater number of people for a longer period than any other grain. Nearly half of the global population is dependent on rice as its major staple food. While Asia remains the main center of production and consumption of rice, the importance of rice is increasing rapidly in Africa and Latin America,

and exports of rice from the United States and Australia are of major importance to the world rice trade.

Rice is probably one of the most strategic commodities for the world, closely connected with food security, economic growth, employment, culture, and regional peace. Being staple food for half of humanity or more than 3 billion people globally, it has been an instrumental crop for many countries not only to meet their food demand but also contribute to their economy by exporting the rice.

2.2 Literature review

The astonishing fact about the hunger problem is not due to an increase in population. Thomas Robert Malthus, an economist believed that a large population will be a problem and can cause starvation and scarcity of food. In his book, *Principle of Population*, 1798 explained this principle in detail. To quote his own words: “By nature, human food increases in a slow arithmetical ratio; man, himself increases in a quick geometrical ratio unless want and vice stop him. The increase in numbers is necessarily limited by the means of subsistence Population invariably increases when the means of subsistence increase, unless prevented by powerful and obvious checks.” It simply means that, concerning human population growth, birth rates increase exponentially and the food supply increases slower.

There will be a limit and a shortage of food if the population continues to grow. Growing populations can strain the economy, the environment, government, as well as the overall infrastructure of social institutions if not monitored. However, the Malthusian Theory doesn't seem to stand in today's scenario.



Fig 1. Abraham Maslow's Hierarchy of Needs

He propounded his theory in 1800 however the 20th century witnessed a major revolution in the field of agriculture and production known as the 'Green revolution. Norman Ernest Borlaug (1914-2009) American scientist, Nobel Laureate, often credited as the father of the green revolution, helped lay the groundwork for agricultural technological advances that alleviated the problem. Today the world produces much more than what is needed for global consumption. Mahatma Gandhi (1869-1948) famously quoted that, "Earth provides enough for every man's needs, but not every man's greed." At the moment, the world produces about 4 billion Metric tons of food per year but about 1.3 billion metric tons go waste. (UN Food and Agriculture Organization, 2020). The world produces 1.5 times enough food to feed everyone on the planet (FAO, 2009). The University of Edinburgh puts that number even higher, suggesting that as much as 44% of agricultural production is never consumed. Despite the magnanimous food production, a whopping high 957 million people went to bed hungry in 2021, (Data

by UN Food and Agricultural Summit, 2021). This clearly illustrates that the problem of hunger does not lie in food production but rather in its distribution. Contemporary economics is ravaged with problems of currency namely inflation and deterioration of its purchasing power, filled with the complications of labour accumulation on one hand and unemployment on the other, pervaded with poverty, beggary destroying the very intricate economic and social fabric of man that has worsened through an age-old mistake that crept into early economics- “Food in exchange for labour.”- (Dr. V.R. Parnerkar, 2020). He further states that economics of the present times has rather ceased to exist as a social science but is often used as a tool of usurping political power. My research aims to identify the cost effectiveness and feasibility of consuming rice to reduce hunger and whether project rice can be implemented on large scale. It also focuses on understanding whether consumption of rice can solve hunger problems and hunger induced stress issues. The research was conducted based on quantitative study method.

2.3 Statistical Data

The problem of hunger is multifaceted, and several terms are employed to reflect its varied manifestations. A child dies every thirteen seconds as a result of starvation. Poverty has been identified as the leading source of hunger. The majority of this category is made up of people who live in extreme poverty, which is defined as having an income of less than \$1.90 per day.

Now the following table will give information regarding the data on hungry people around the globe in the following years.

Table 1. Years and Global Hunger

Year	Global Hunger
2030	It might reach to 957 million people (Speculation published by WHO).
2021	840 million people in 2021 (UN Food Summit Report 2021).
2018	820 million (Report produced by State of Food Security and Nutrition in the World).
2017	811 million (Report produced by FAO)
2015	795 million (The State of Food Insecurity in the World 2015 - SOFI).
2000- 2004	690 million (UN Report on Food Security and Nourishment).
1990	200 million (UN Report on Hunger and Food Insecurity).

2.4 World hunger

Looking at current world hunger data reveals just how serious the problem is. Hunger is caused by several circumstances, including a lack of resources among the hungry, unequal wealth distribution around the world, violence inside specific countries, and even meteorological disruptions in some countries. According to the UN World Food Program's live Hunger Map, 840 million people throughout the world do not have enough to eat regularly. This equates to a total of 93 hungry countries! If current trends continue, this number might rise to 957 million by 2030. Economic slowdowns and extreme weather disasters are two factors that are increasing world hunger. The United Nations warns that unless efforts are made to restructure global food systems, the UN's goal of achieving zero hunger by 2030 would be missed. Goal 2 of the UN Sustainable Development Goals aims to

eliminate all kinds of hunger and malnutrition by 2030, ensuring that all people, particularly children, have access to sufficient and nutritious food. This entails promoting sustainable agriculture, assisting small-scale farmers, and ensuring that all people have equal access to land, technology, and markets. Approximately 500 million tonnes of milled rice were produced globally during the 2019-2020 marketing year, according to the USDA (United States Department of Agriculture, Foreign Agricultural Services, PSD Reports, World Rice Production, Consumption, and Stocks, 2020). Nearly 90 per cent of the world's rice is produced in Asia. In contrast to this productivity, about 180 million tonnes of rice are wasted each year in Southeast Asia alone (as per a report in International Business Times, 2013). Since 2014, when the frequency of undernourishment was at 8.6%, food insecurity, both moderate and severe, has "consistently grown." It is currently at 8.9%. The number of hungry people increased by ten million people between 2018 and 2019. (Kretchmer, 2020). Poor engineering and agricultural methods, insufficient transportation and storage infrastructure, and sales promotion offer pushing consumers to overbuy are all listed as reasons for waste.

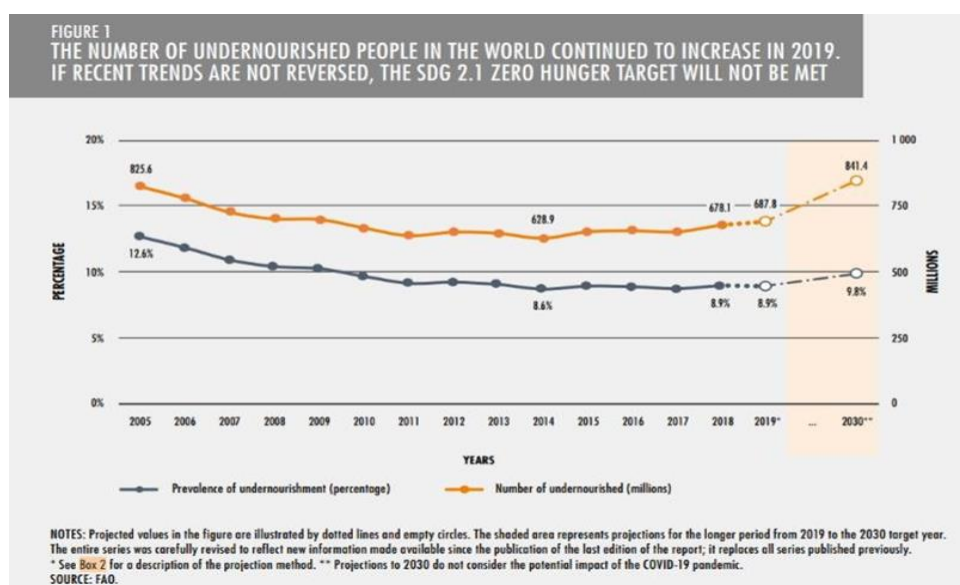


Fig.2 Data on undernourished people in the world (FAO)

Hunger is the world's leading cause of death. Our earth has abundant resources, but unequal access and inadequate management have resulted in millions of people going hungry. We can feed the entire world's population and ensure that no one goes hungry again if we encourage sustainable agriculture with contemporary technologies and equitable distribution mechanisms. In many nations, however, acute hunger and malnutrition remain major roadblocks to progress. As of 2017, an estimated 821 million people were chronically malnourished, largely as a result of environmental degradation, drought, and biodiversity loss. Over 90 million children under the age of five are overweight or obese. Undernourishment and severe food insecurity appear to be on the rise in practically all of Africa, including South Africa and as well as in South America.

2.5 Reasons for Hunger

Individuals become less productive and more susceptible to disease as a result, making them less able to enhance their livelihoods or earn more money. But why are so many people going hungry when the world produces enough food to feed everyone? Hunger has a wide range of consequences, all of which are catastrophic. A diet deficient in calories, proteins, vitamins, and minerals obstructs human development at all levels – for infants, children, and adults. As a result, entire communities' health, education, economic, and social development are significantly impacted around the world. Food insecurity is exacerbated by persistent instability caused by adverse climate occurrences, conflict, and economic slowdowns. However, because the majority of hungry people live in developing nations, poverty is the leading cause of hunger worldwide.



Fig. 3 Causes of hunger problem (Source: We Hunger Life)

- Climate change

Climate variability and extremes are increasingly becoming a driving element behind world hunger. Since the early 1990s, the number of climate-related calamities — droughts, famines, floods, and extreme temperatures – has increased. Nearly 124 million people in 51 countries experienced "crisis" levels of acute food insecurity or worse in 2017 (UN Global Hunger Index Report 2018), mandating immediate emergency action to protect their lives and livelihoods. Temperatures are rising, and rainfall patterns are shifting, wreaking havoc on crops and cattle, with serious implications for food security and nutrition.

- Conflict and instability

Conflict and instability are the leading causes of food insecurity in 18 countries, accounting for 60% of the global total, according to the 2018 Global Report on Food Crises. On the communal level, political conflict can have a

detrimental influence on market infrastructure, transportation services, and land availability, while on an individual level, it can result in income loss, house displacement, and food price inflation. Essential services and supplies become even more inaccessible to the most vulnerable when regions grow increasingly turbulent and besieged by violence. According to the United Nations, conflict is responsible for 80% of its humanitarian financial needs. Future attempts to combat global hunger must complement efforts to maintain global peace.

- Inequality

The agenda 2030 calls on us to leave no one behind. Nonetheless, both internationally and within individual countries, the gap between affluent and poor is widening. One per cent of the world's population owns roughly half of the world's wealth. The weak and hungry among the "bottom billion" have almost little hope of escaping their plight. Food and nutrition security should be managed more fairly around the world, according to the recently introduced Food Security Standard (FSS).

- Biased global trade

The rules of international policy are set by wealthy nations. Unfair trade agreements and subsidies provide industrial-nation businesses with market access and price advantages. The revenues are skimmed off by rich states from developing countries' raw material exports. Smallholders and rural value networks benefit from more equitable agricultural trading.

2.6 Impact of hunger

A person's emotional health might be harmed by not being able to feed

their loved ones. Hunger raises your chances of developing chronic diseases. Hunger has been linked to chronic ailments, most of which are driven by stress linked to hunger, such as high blood pressure, heart disease, and diabetes, according to the USDA. There are various mental traumas in addition to the physical health effects.

- Higher Risk of Depression

Researchers found that as the severity of food insecurity increased, the number of reported depressive symptoms increased. Those with very low food security had three times higher odds of depression when compared to those who were food secure. Higher Risk of Suicide due to stress. Food insecurity has specifically been linked with suicidal ideation.

- Mental Health

Single mothers are a particularly vulnerable population and experience food insecurity at disproportionately higher rates than the general population. According to Children's Health Watch, food-insecure mothers in Boston are almost three times more likely to experience maternal depression when compared to food secure mothers.

- Stress on teens and kids

There are lots of potential reasons why food insecurity and mental health may be linked. Food insecurity often forces individuals to make stressful decisions, such as choosing between food and paying rent or buying medications. The increased psychological stress may contribute to depression or anxiety.

- Hunger alters perception

Hunger activates extra nerve cells in the brain that control perception. Which might lead humans to misread the situation. Sometimes unnecessary anger issues can also be seen in humans. Food insecurity is a complex issue that often comes along with many other physical, mental, and social concerns. This connection with mental health is one more reason why addressing food insecurity is so important for communities. Although it is unclear what creates the link between food insecurity and mental health, actions to increase food security in food-insecure communities may also improve general mental health.

2.7 Contributions towards eradicating world hunger

- World Food Program

The United Nations' World Food Program (WFP) is in charge of food aid. It is the world's largest humanitarian organization, the world's largest hunger and food security organization, and the world's largest distributor of school meals. It is based in Rome and has offices in 80 countries. It was founded in 1961.

- Meals on the wheels

Meals on Wheels America is the umbrella organization for more than 5,000 community-based programs dedicated to eliminating senior isolation and hunger across the country.

- Care

Care International is a global confederation comprising 14 National Members, 6 Candidates, and 1 Affiliate united in their objective to end poverty. Each CARE Member is a self-contained organization that directs activities, raises funds, fights for major problems, informs the public in their nation, and supports CARE's work in 104 countries around the world. Since 1998, CARE has been

working to increase the diversity of its membership and overall organizational model.

- Akshaya Patra

Akshaya Patra is the world's largest (non-profit) Mid-Day Meal Program, giving healthful meals to nearly 1.8 million children from 19,039 schools in 12 Indian states and two union territories every school day.

- Why Hunger

'Why Hunger?' was created in 1975 by the late artist Harry Chapin and radio DJ Bill Ayres on the conviction that access to nutritious food is a human right and that hunger is a solved problem in a world of plenty. Why Hunger believes in the power of music and uses it to collect funds and help the poor throughout the world through worldwide music events that provide a platform for emerging artists as well as international artists.

The contributions and efforts are not only by different organizations around the globe but also by individuals around the globe. Their initiative is worth mentioning.

- Bill Ayres & Harry Chapin

In New York, there is a Catholic priest. Ayres and his companion Harry Chapin, a singer/songwriter, decided to help the poor with their most fundamental need: food. Together, they founded The World Hunger Year (WHY), an organisation dedicated to fighting hunger via charity and enlisting the aid of celebrities and leaders to spread the word about their cause.

- Bill Shore

Bill Shore and his sister Debbie launched Share Our Strength (SOS) in 1984 with a \$2000 cash advance on their credit card. Share Our Strength is a national non-profit organization dedicated to eradicating child hunger in the United States.

- Ellen Gustafson

Sustainable food system activist, Ellen Gustafson raised a very valid point when she founded 30 Project, a campaign that would speak about the link between hunger and obesity.

- Ertharin Cousin

Ertharin featured as the 47th most powerful woman in the world in 2015, Ertharin Cousin is the head of the UN World Food Programme - the world's largest aid agency combating world hunger. By profession, Ertharin is a lawyer. And twelfth executive director of United Nation.

- Jim Weill

Jim has devoted all his career to helping reduce hunger and poverty in the world. Acting as the president of the Food and Research Action Committee since 1998, Jim also works to protect the legal rights of children and people living in poverty and expand their economic security

- John Conrad

Originally a physicist, Conrad's tryst with The Hunger Project started back in 1977 when he started as a volunteer. He is the executive vice president of The Hunger Project. He is responsible for research and advocacy.

- Louise Fresco

Apart from being a scientist, writer, and director, Dutch Louise Fresco is also an expert on food and agriculture sustainability. A former UN director, Fresco has a very strong hold on several global issues like poverty, hunger, and other environmental issues.

- Rachel Zelon

Rachel Zelon is the founding member and the current CEO of Hunger Relief International, a Christian relief and development organization, that is trying to help eradicate hunger in malnourished families by working with the local communities

- M.S. Swaminathan

Otherwise known as the 'Indian Father of Green Revolution, Professor Mankombu Sambasivan. For his work in the 'Green Revolution, he received the World Food Prize in 1987, the proceeds of which were used in setting up the M.S Swaminathan Research Foundation. The foundation works towards tackling the issues faced in agriculture, food, and nutrition in rural India with science and technology. He has been called the main architect of the green revolution in India for his leadership and role in introducing and further developing high-yielding varieties of wheat and rice.

- Ankit Kawatra

Feeding India is an organization started by Ankit Kawatra that works towards eliminating hunger by addressing two issues at once – hunger and food waste. Feeding India started in 2014. Largely a volunteer-run organization, Feeding India collects excess food from donors, whether it's homes, hotels, canteens, or restaurants, and uses it to feed the hungry in the country. He became

the youth icon of India.

2.8 Country wise contribution

Food security has replaced the concept of food self-sufficiency, which was advocated in the 1970s and supported by many countries. Its goal is to make all foodstuffs available in sufficient quantities and with adequate nutritional qualities, regardless of their origin, whether they are produced locally, imported, or donated as food aid.

- France

The French Government banned supermarkets from throwing away or destroying unsold food, forcing them instead to donate it to charities and food banks.

- Norway

Norway has used technology in such a way that alerts the government, citizens, and needy people to get the food items at a discounted rate or free. A platform called bestfør.no, helps supermarkets identify food at risk of becoming inedible through a digital record of products' sell-by dates, allowing stores to locate the food that needs a lower price, or alert charities of a load of produce coming their way, without the fuss of searching through the shelves. A new app, food list, encourages people to take photographs of food in stores coming to the end of its shelf life, to alert people that it needs to be eaten and where it can be found. A company called SNÅL frukt & grøn has popped up selling wonky vegetables, or odd-colored eggs, with a 30% discount. And the Norwegian government says they want more of this, and quickly.

- Denmark

Denmark now has the highest number of food waste initiatives of any European country. A no-profit organization called Stop field AF mad means Stop wasting food, designed a program to decrease food waste. Due to this Denmark has decreased food wastage by 25% in five years.

- Japan

Since the early 2000's many initiatives have cropped up to tackle the problem. For example, the country now has a national food bank organization called Second Harvest dedicated to rescuing edible food from grocery stores and other retailers and quickly redistributing it to people in need. There are also initiatives to offer bonus store points on purchases of food nearing best before dates and the recent Food Recycling Law, which aims to divert food waste towards centers that convert it to compost, animal feed, and energy.

- Kenya

Kenya has a huge potential in the dairy sector. With the help of the World Agroforestry Centre, Kenya produces more milk with fewer emissions i.e. decreasing the emission to 3.3% compares to 2008 through training to improve livestock feeding practices.

- Colombia

Colombian farmers who used to enjoy reliable rainfall are increasingly taking a hit when extreme floods and droughts occur, wiping out the crops they rely on for cash and food. To help farmers adapt to these harsh conditions, knowledge exchange with farmers in Senegal was facilitated by the International Centre for Tropical Agriculture (CIAT) and national partners in both countries. Senegalese farmers have a wealth of indigenous knowledge for coping with long

droughts and have also been working in some regions with the national meteorological agency to develop more accurate and useful seasonal climate forecasts that can be disseminated across the country by radio and SMS.

- United Kingdom

The UK Food Security Report sets out an analysis of statistical data relating to food security, examining past, current, and predicted trends relevant to food security to present the best available understanding of food security. It fulfils a duty under Part 2, Chapter 1 (Section 19) of the Agriculture Act 2020 to prepare and lay before Parliament “a report containing an analysis on statistical data relating to food security in the United Kingdom”.

- Malaysia

Although Malaysia is self-sufficient in poultry meat, pork, fisheries, and eggs, we are still depending on the imports of numerous food commodities such as rice, fruits, dairy milk, and beef. In 2015, the food import bill was almost RM45.4 billion while the exports were only RM 27 billion leaving a deficit of over RM18 billion. If this situation continues, Malaysia will be unable to render a continuous food supply to its people and most likely face a food crisis shortly. Recent studies have shown that low-income rural communities are more prone to food insecurity due to bigger family sizes, more school- going children, and mothers who are not working.

To ensure food security, Malaysia through its government and private institutions is working hand in hand to improve the production of staple foods by leveraging on agro-biotechnology, investing in rural areas, and minimizing marginalization of small farmers and other stakeholders. The Ministry of

Agriculture and Agro-based Industry (MOA) has been organizing various seminars, workshops, and memoranda of understanding (MoUs) between the ministries, private firms, agencies, and stakeholders to ensure continuous food supply.

- Africa

Within the African Union's Agenda 2063, Goal 3 within Aspiration 1 is dedicated to 'Healthy & well-nourished citizens'. The First Ten Year Implementation Plan (FTYIP) of Agenda 2063 aspires to halve malnutrition in Africa by 2023. There are also direct links between food security and agriculture as Goal 5 of Agenda 2063 includes two targets focused on ending hunger and child undernutrition.

- United Arab Emirates

By launching the National Food Security Strategy 2051, the UAE aims to achieve zero hunger by ensuring access to safe, nutritious, and sufficient food all year round throughout the world. The strategy specifically aims to implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems.

- United States of America

SNAP, WIC, National School Lunch Program, Food Distribution Program on Indian Reservations (FDPIR) These are some anti-hunger programs run by the US Government to feed the poor. AGP works together with the Office of Global Food Security and the United States Agency for International Development's (USAID) to advance Feed the Future (FTF) the U.S. government's global hunger and food security initiative, to combat acute food insecurity and the G- 7 New

Alliance for Food Security and Nutrition, a partnership among G-7 and African governments, and the private sector.

- India

India's recent National Food Security Act will help 800 million people access publicly financed or subsidized food. Thanks to engagement by partners M.S. Swaminathan Foundation and Biodiversity International, the government will distribute coarse grains, such as millet, sorghum, and maize, in addition to the basic staples, rice, and wheat. Coarse grains are highly nutritious and are also highly resistant to climate-induced stresses such as drought and flood. There are several social safety nets in place in India to address these challenges: The Public Distribution System, the Antodaya Anna Rozgar Yojana, National Rural Livelihood Mission (NRLM), the Mid Day Meal Scheme, the Mahatma Gandhi National Rural Employment Guarantee Act, and most recently the landmark Food Security Act of 2013, which aims to subsidize food grain to over 75% of the rural population and half of the urban population. National Nutrition Mission (NNM), Poshan Abhiyan – NNM was started in 2018 by the Ministry of Women and Child Development to reduce the level of under-nutrition and also enhance the nutritional status of children in the country National Food Security Mission – Ministry of Agriculture initiated NFSM in 2007 to increase the production of rice, wheat, pulses, and coarse cereals through area expansion and productivity enhancement in a sustainable manner.

CHAPTER 3. CURRENT SOLUTIONS FOR CURBING HUNGER

3.1 Introduction

3.2 Food wastage control

3.3 Production of more food

3.4 Lacunas

3.5 Gap analysis

3.1 Introduction

The severe food crisis that is afflicting the people of developing countries, where the majority of the world's hungry and malnourished live and where more than two-thirds of the world's population produces about one-third of the world's food—an imbalance that threatens to worsen in the next ten years is not only fraught with grave economic and social consequences, but also endangers the most fundamental principles and values associated with the right to life and humanity. The elimination of hunger and malnutrition, which are listed as one of the United Nations Declaration on Social Progress and Development's goals, as well as the elimination of the causes that contribute to this situation, are universal goals. The situation of peoples suffering from hunger and malnutrition stems from their historical circumstances, particularly social inequalities, which include, in many cases, alien and colonial dominance, foreign occupation, and racial discrimination.

3.2 Food Wastage control

Food wastage control is one of the solutions that is practiced globally in

curbing world hunger. Certainly controlling wastage has proved beneficial in controlling world hunger. But the issue still prevails and it is not a permanent solution to curb the food hunger of millions of people around the globe. Controlling food wastage can prove beneficial for short term achievements in case of food hunger but it is crucial to understand the practical barriers to curbing world hunger once and for all. The food wastage control process is hectic, time-consuming and most important is time-bound process. Food waste management in India is becoming a serious issue as the Indian population continues to grow. Indians squander as much food as the whole UK consumes - a statistic point that will not be most representative of our love of surplus because it is of our population. The majority of food is thrown out at weddings, canteens, hotels, social and family occasions, and houses. Still, food waste is a terrible problem in India, as is food waste management. Our streets, garbage cans, and landfills are doing havoc on our ecosystem, and there is plenty data to back this up. Solely a pair of the ten shops surveyed were part waste aware, i.e., they separated the edible from the inedible, and ensured that food in condition reached empty stomachs. One among them disposed of their food at twelve noon, in order that it might be fed to the cows within the space. The other claimed to administer away all edible waste material to the native labourers and employees, for free, at the tip of the day.

- On Average, 40% of food produced were being disposed of. This means that 7.5 tons of food are discarded daily.
- Some 84.7% of the whole waste material recorded was thrown within the bin, whereas the remainder was either fed to the poor or some animals.
- A big portion of the waste material binned was still in edible

condition.

- If the edible waste material generated is used, we tend to estimate that it might feed a minimum of 2000 individuals daily.

The better process will feed 11 percent of the world's population, several Indians. Meeting the food desires of a growing population in India (1.7 billion by 2050) whereas reducing food loss and waste poses a significant challenge. Wasting a ton of wheat and rice would mean wasting 1,500 and 3,500 liters of water severally that goes into their production.

Globally, virtually 250 cubic km of water and 1.4 billion hectares of land are dedicated to manufacturing food that's lost or wasted. According to the Food and Agriculture Organization (FAO), once a year around 17 billion tons, or one-third of food made for human consumption, are lost or wasted globally. The associated economic, environmental, and social prices of this loss at around \$1 trillion, \$700 billion, and \$900 billion p.a. severally.

In India, the worth of food wastage (harvest and post-harvest losses of major agricultural produce) is calculable at around INR 92,000 crore once a year at 2014 wholesale costs. Within the food price chain, twenty-four percent of worldwide food loss and waste happens at the production stage, twenty-four percent throughout handling and storage, and thirty-five percent at consumption.

These 3 stages taken along account for over eighty percent of worldwide food loss and waste. Quantifying waste material on the worth chain by investing in the recently discharged international organization International Food Loss and Waste Protocol as a framework will facilitate India. Looking at all the statistics and data available it is important to note that just by mere controlling the waste

hunger crisis can be brought under control but the scenario is different. We are unable to achieve this. Controlling food waste might seem like a good solution but in the long run with all the efforts and practical implementations and taking into consideration the perishability of food it is not possible to curb the whole hunger issue with mere control of food waste.

3.3 Production of more food

Increasing food production through intensive farming will not necessarily end world hunger, experts said on Thursday in a finding that flies in the face of established policy. The United Nations has said countries must double the productivity and incomes of small-scale food producers by 2030 to eliminate hunger and ensure all people have access to food. "The underlying assumption is that this creates food security on one hand and also improves the livelihoods of smallholders. But we really need to question that," said Adrian Martin, a professor at Britain's University of East Anglia. According to a new United Nations report, global rates of hunger and malnutrition are on the rise. The report estimates that in 2019, 690 million people – 8.9% of the world's population – were undernourished. It predicts that this number will exceed 840 million by 2030. The world population doubled over the last 50 years to 7.5 billion people, while the share of the population suffering from food and nutrition insecurity fell from 15% in 2000 to around 11% today. While an unacceptably high 820 million people are still food insecure, it is not because food is not available. The root cause of hunger and malnutrition today is poverty – often exacerbated by conflict – that inhibits access to food. The conditions in which food are produced vary tremendously across the world. In advanced countries, technological innovations are bringing high-tech solutions to many farms. At the same time, small farms with less than two hectares

of land represent 84% of farms globally, but produce only one-third of global crop production. Farmers and fishers operating on a small scale seldom have either the resources or the education to access the latest technologies, and often hesitate to try new approaches they perceive as too risky to their own food security and livelihoods. Following the widespread uptake of aquaculture production, particularly in Asia, almost 60 million people work in the fisheries and aquaculture sector today, almost twice as many as in the early 1990s. At the same time, global seafood consumption has grown more rapidly than all other meats combined. Food production per farmer has also increased strongly, while the share of the global population working in agriculture has fallen. Today, agriculture accounts for only 3% of total employment in high-income countries, but over 40% in some major emerging economies such as India, and an even higher total in some less developed economies, including many in Africa. At the same time, the emergence of global value chains (GVCs) has increased the interconnectedness of our economies, as various stages of production of the food we eat and the clothing we wear take place in different countries around the world. This creates potential new opportunities, but also challenges, for farmers and fishers to benefit from indirect access to global markets, by participating directly in domestic value chains. The nature of consumer demand is also changing, again creating both new opportunities and challenges for primary producers and downstream food processors and distributors. Since the time of Malthus, the global food system has responded to the needs of a growing and more affluent world population. But farmers and fishers operate in a world of constant change, and the pace of change is increasing. Governments have an important role to play to ensure that its policies, institutions, and infrastructure are fit for purpose, providing the enabling environment for the

sector to be increasingly productive, sustainable, resilient and responsive to consumer demand. Increasing food production through intensive farming will not necessarily end world hunger. It will create more issues to tap on later. It will be problematic for the environment. With less availability of land for farming, farmers will be forced to improve their quantity of production and this will lead to deterioration of land in the long run and ultimately result in poor quality food production. The problem with more production of food is that the available food is getting wasted due to problematic process of storage, management and circulation. Food gets wasted or either after production it gets wasted. The solution of producing more food is not going to solve the concern of world hunger problem.

3.4 Lacunas

The global hunger crisis is escalating, and it is no longer limited to a single region or continent; it now affects the entire world. The situation has deteriorated to terrifying levels of malnutrition and misery as a result of the Covid-19 pandemic. Millions of people are at risk, and their basic right to eat is being violated every day, while each person goes to bed hungry without having had the opportunity to eat. After maintaining largely steady for five years, undernourishment climbed from 8.4% to 9.9% in just one year. According to the State of Food Security and Nutrition in the World, 2021 report, this makes reaching Zero Hunger by 2030 much more difficult. The Global Evidence documents recent defeats in the fight against hunger and predicts difficulty ahead. Despite the fact that global hunger has been declining since 2000, coinciding with a decrease in extreme poverty during that time, progress is slowing. Between 2006 and 2012, the global GHI score dropped 4.7 points, from 25.1 to 20.4, but it has only dropped 2.5 points since then. The most recent data on the prevalence of

malnutrition, one of the four indicators used to compute GHI ratings, show a minor increase in 2018 and a significant increase in 2020. Data on malnutrition could be a precursor to a broader reversal of success in the fight against hunger. To find a long-term solution to the food crisis, all efforts should be taken to close the gap that now exists between industrialized and poor countries and to establish a new international economic order. All countries should be able to participate actively and effectively in the new international economic relations by establishing appropriate international systems, where necessary, capable of producing adequate action to establish just and equitable relations in international economic cooperation; developing countries reaffirm their belief that they bear primary responsibility for their own rapid development. They declare their willingness to continue to intensify their individual and collective efforts to expand their cooperation in the fields of agricultural development and food production, including the eradication of hunger and malnutrition; because many developing countries are still unable to meet their own food needs for a variety of reasons, urgent and effective international action is needed to assist them. The contributions and efforts to combat world hunger are enormous all over the world, but the reality is far more challenging than the efforts made at the international level. The pressing necessity of the hour is to end hunger once and for all, rather than simply feeding some hungry individuals. Efforts should be made on a worldwide scale to combat world hunger. The following are the flaws that the researcher discovered during the research.

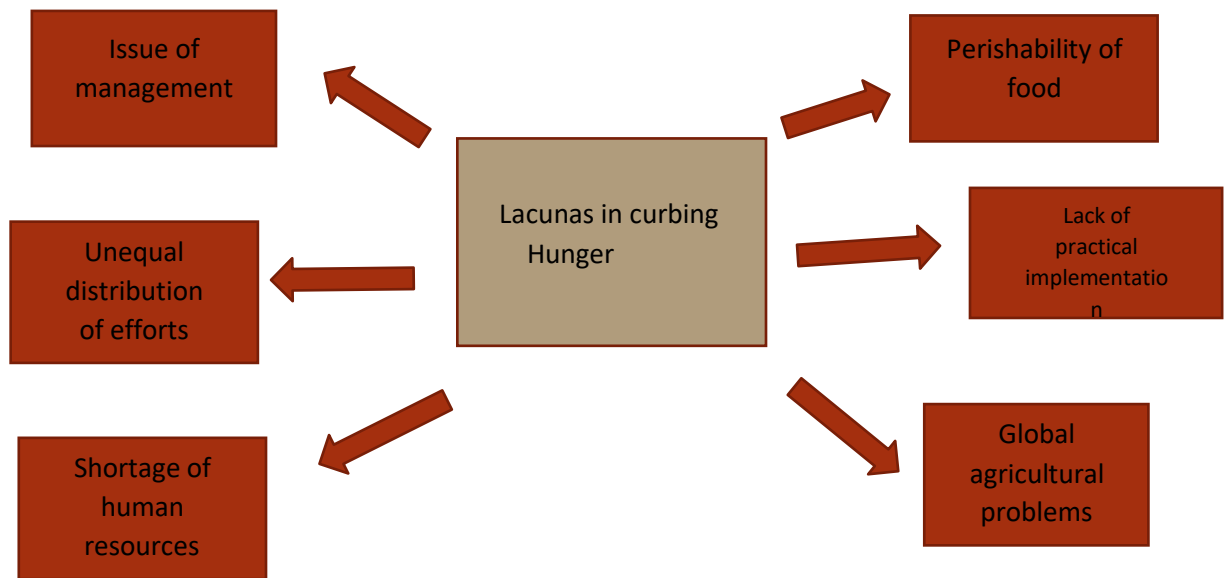


Fig.4 Lacunas in eradicating hunger

- Issue of management

Management is the process by which an organization achieves its objectives while maintaining a high degree of quality. It is a continual process aimed at attaining an organization's objectives. International organizations are paving the way in terms of helping to the fight against hunger. Planning, organizing, controlling, coordinating, and supplying food to hungry people are all managerial activities. The issue with these processes is that the planning, organizing, commanding, and coordinating go smoothly, but the implementation, i.e., the lack of effort in putting policies into practice, is a major flaw. The failure of many endeavors can be traced back to a management issue. The objectives are obvious, but the management is ineffective.

- Unequal distribution of efforts

The unequal distribution of efforts is another issue. Efforts to eradicate world hunger are undoubtedly underway, but concerted efforts are required to

achieve the UN's Sustainable Goal of Zero Hunger. During my research, I noticed that there was an unbalanced allocation of efforts, as evidenced by many publications and news pieces. In many circumstances, unequal allocation of efforts results in failure to achieve the Zero Hunger target.

- Shortage of human resources

Human resources are the people who make up an organization's, business sector's, industry's, or economy's workforce. Human capital is a more specific term that refers to the knowledge and abilities that individuals possess. Manpower, labour, staff, companions, or simply: people are similar phrases. Human resources can help lay the foundation for accomplishing the goal. Human Resources is critical in developing, reinforcing, and adjusting initiatives to get better results. However, it is clear that human resources are limited in quantity when it comes to eradicating world hunger. Any endeavor relies on human resources. However, because the aim is larger, having fewer human resources is a concern.

- Perishability of food

Because one of the natures of food is perishability, human efforts will not be able to fill this void. One of the most common causes of food waste is its perishability. Perishable Foods, as a result, each perishable food item has a fixed period of time during which it will maintain a predetermined acceptable level of quality, referred to as its 'shelf life,' under specific handling and storage conditions. Food deteriorates quickly over time, making it impossible to convey to the location where it is most required.

- Lack of practical implementation

Contributors frequently focus extensively on high-priority issues while

neglecting to examine the current condition of their operations and their actual execution. It's essential to consider that there's a need for change in this area in terms of addressing the gap in actual implementations. The contributor should think about the consequences and plan properly. Look beyond the usual methods to find solutions to the problems that arise when targets are put in real- world circumstances.

- Global agricultural problems

Managing agricultural results is the most effective approach to eliminate hunger. However, the global agricultural crisis is on the rise, and managing the waste available into the eradication of hunger is a challenge. Climate change, water and soil quality, land degradation, and chemical use are all challenges with global agriculture. Contributors can only put out their best efforts if the crops and food are of high quality.

3.5 Gap analysis

Though, on many levels, the hunger problem is handled by different individuals, people, countries, and renowned NGOs. Nearly 690 million people are undernourished; 144 million children suffer from stunting, a sign of chronic undernutrition; 47 million children suffer from wasting, a sign of acute undernutrition; and in 2018, 5.3 million children died before their fifth birthdays, in many cases as a result of undernutrition (Global index report 2020).

After the Pandemic hit in 2020, fearful climate change and war were taking place in many regions. It is difficult to be optimistic about the hunger problem in upcoming years. Due to this situation, the graph of the progress which made till this year to resolve the hunger problem is going downward. The Covid crisis

requires us to work together across borders to mitigate the impact of the Covid 19 and to reshape the food systems by providing healthy diet options through good food production and consumption aligned to sustainable development.

The Global Evidence shows current setbacks against hunger and suggests trouble ahead. Although Global health index scores show that global hunger has been on the decline since 2000, coinciding with a decline in extreme poverty in that period, progress is slowing. While the GHI score for the world fell 4.7 points, from 25.1 to 20.4, between 2006 and 2012, it has fallen just 2.5 points since 2012. The latest data on the prevalence of undernourishment—one of the four indicators used to calculate GHI scores—reveal a slight rise beginning in 2018 and a marked increase in 2020. Data on undernourishment may be a leading indicator of a broader reversal of progress against hunger. Before the pandemic, over 840 million people worldwide, almost all from developing countries, continue to suffer from chronic hunger out of which 135 million are likewise in the alarming prevalence of malnutrition in children requires our most urgent attention. SNAP, WIC, National School Lunch Program, Food Distribution Program on Indian Reservations (FDPIR) These are some anti-hunger programs run by the US Government to feed the poor.

After analyzing the gap and lacunas, it is clear that the problem of world hunger is widespread, and it is designated as a serious concern under the UN's Sustainable Development Goal 2. There is an urgent need for the entire globe to pay attention towards global hunger. Rice is a sustainable solution that can only be reached on a global scale by the active participation from all around the world.

CHAPTER 4. DISCUSSION

- 4.1 Introduction
- 4.2 Comparison of rice with other grains
- 4.3 Why Rice?
- 4.4 Rice production around the globe
- 4.5 Rice, a sustainable solution
- 4.6 Importance and nutritional value of rice

4.1 Introduction

Since the conclusion of WWII, global food and agricultural production has expanded dramatically, owing to a combination of population and economic development, as well as technological and cultural shifts in production patterns. Food demand has increased globally as a result of rising population, income, and urbanization, as well as a shift in dietary choices toward more resource-intensive foods.

The Green Revolution was instrumental in developing intensive agricultural production practices around the world and creating dominant agricultural ideas. Since the 1950s, global yields have continually increased; today, more food is produced per person than ever before. Though widely credited with averting large-scale food shortages in the post-World War II era, the Green Revolution's intensification practices have been criticized for contributing to environmental degradation, unsustainable resource consumption, and a reliance on non-renewable resources such as fossil fuels. The food system's large-scale behavioral patterns include intensification, consolidation, and specialization. Intensive practices dominate the whole system, and a small number of actors in

the domains of production, processing, and retail control the majority of the food system and have a significant influence on policymaking. More powerful countries take advantage of trade agreement loopholes, resulting in unfair competition for developing countries, ultimately leading to manufacturing reliance and degrading local food security.

Recent trends and regulations favoring non-food crops such as biofuels and biomaterials are causing land and other base resources to be reassigned, reducing their availability for food production. Agriculture research and development funding is primarily accessible in higher-income countries, leaving lower-income countries behind. The majority of research and development dollars have gone into improving conventional production methods, with very little money going toward developing sustainable agriculture approaches. The food system is the most significant source of both environmental and humanitarian consequences. Due to rising population and income, a doubling of food production by 2050 may be necessary. The food system is primed for future expansion, despite its already severe environmental and humanitarian consequences. Based on a business-as-usual scenario, the Food and Agriculture Organization of the United Nations (FAO) calculated that by 2050, we will need to raise food output by 60%. Population growth has been revised upwards since the FAO's forecasts, and food consumption is expected to double. This is the largest rise in production from today's levels since the 1960s.

Past concerns about the scalability of global food supply have been alleviated by a steady increase in output through intensification, but recent developments have reignited concerns about global food supply continuity in the future decades. Major agricultural genetic potential is being attained, land is being

degraded, and low-producing regions are experiencing a structural lack of investment. These challenges have resulted in a slower rate of growth in yields in recent decades, and yield increases are currently falling short of predicted demand increases. This circumstance motivates policymakers and researchers to redouble their efforts to advance the intensive farming technologies that have resulted in spectacular production improvements in recent decades.

4.2 Comparison of rice with other grains

Food is an important element of every day. We eat three times every day on average. It is essential to have a healthy and balanced diet in order to improve our physical and mental health. Eating well will solve a health condition and contribute to improved health in the future. All grains are important for supplying us with nutrition, but if someone does not have the resources to buy food for oneself or if food is not available due to harsh circumstances, it is essential to understand the relevance of grain selection since vegetables, fruits, and dairy products do not have a lengthy shelf life and must be consumed within a week or so, owing to their perishable nature. Specific climatic conditions are necessary for the cultivation of vegetables, fruits, and with dairy products, which may not be accessible at all times and in all regions across the world.

A grain that will assist you in a variety of ways. Which will be inexpensive, readily available, and give a variety of nutrients for survival. When someone is hungry, it is difficult to convince them of the value of nutritious meals. His main priority is to satisfy his appetite. He does not place a high value on healthful eating. It is vital for him to have food, something to eat, something to satisfy his hunger, something to make him go to bed with the pleasure of having at least a few morsels

of food. Poor folks can eat anything.

One such example may be seen in Haiti, one of the poorest countries in the Western Hemisphere, where a lack of food has forced Haitians to rely on mud platters, called Cite Soleil, for survival. No, not to hold food, but to consume it. They've become so accustomed to eating dirt platters that it's become second nature to them. They buy mud, create platters out of it, then sell and consume it.

Cite Soleil is the most popular meal in the slum. Imagine how valuable giving them rice may be, and how with rice in their meals, they would finally be eating food for their hunger rather than those mud cakes flavored with sea salt. The difficulties they confront may reduce as a result of the production and distribution of rice in such locations. The topic of why rice may now emerge. Why not wheat, sorghum, bajra (pearl millet), and corn?

In this chapter, I compared the four grains stated above to rice and provided a comprehensive explanation of why rice is the ultimate grain for ingestion if one is concerned about his survival.

- Nutrients per serving 100 gms.

Table no. 2

Nutrients (Per 100gms)	Wheat	Jowar	Bajra	Corn	Rice
Energy	340 kcal	335 kcal	370 kcal	96 kcal	121 kcal
Protein	13.2g	10.4 g	21.1 g	3.4 g	2.7 g
Total Fat	2.5g	3.9 g	4.9 g	1.5 g	0.38 g
Carbohydrates	61.3g	72.6 g	64.4 g	19 g	26.34 g
Iron	3.6 mg	4.4 mg	0.6 mg	2.5 mg	1.6 mg

Sodium	2g	-	28 g	1 mg	126 mg
Calcium	34 mg	25 mg	42 mg	9 mg	11 mg

- Costing for harvesting 100 kgs of the grain

Table no. 3

Cost	Wheat	Jowar	Bajra	Corn	Rice
Seeds and Land Preparation, Manure and Fertilizers	Rs. 1545	Rs.1200	Rs. 1800	Rs 1300	Rs. 1123
Auxiliary material for cultivation	Rs. 40	Rs. 60	Rs. 14.33	Rs. 30	Rs 12.50
Wages of production	Rs. 68	Rs. 25	Rs. 55	Rs.78.34	Rs. 58
Payment of electricity for irrigation and harvesting	Rs. 164.87	Rs.100.50	Rs.145. 32	Rs. 169	Rs.117.07
Equipment maintenance and operation costs	Rs. 166	Rs. 122	Rs. 180	Rs. 240	Rs 180
Container and storage cost	Rs. 0.22	Rs. 1.2	Rs. 2.10	Rs. 4.98	Rs. 0.12
Total	Rs.1963.09	Rs. 1508.7	Rs.2196.75	Rs.1822.32	Rs.1490.69

- Shelf life

Table no. 4

Details	Wheat	Jowar	Bajra	Corn	Rice
In harvested form	1 year	6 months	8-10 months	9-12 Months	10-12 years
In the flour form	3-4 months	30 days	20 days	9-12 months	10-12 months
After cooking	1 day	1-2 days	2-3 days	2 days	4-5 days

- Favourable conditions for cultivation

Table no. 5

	Wheat	Jowar	Bajra	Corn	Rice
Temperature	21°-24° C	27° C-32° C	20 °C- 30 ° C	23.89°- 25° C	21 to 37° C
Weather	Lot of sunshine, average amount of rain	Moderate rainfall between 30 and 65 cm	Dry and warm climatic conditions	Warm, sunny growing weather	Humidity, prolonged sunshine and an assured supply of water

- Production

Table no. 6

Producing countries	Wheat	Jowar	Bajra	Corn	Rice
	China, India, Russia, United States, Canada, Pakistan, Ukraine, France	Nigeria, India, Sudan, Mexico, Argentina, China, Ethiopia, Australia, Burkina Faso, Brazil	India, Nigeria, Mali, China, Senegal, Sudan	China, Brazil, Argentina, Ukraine, India.	China, Indonesia, India, Bangladesh, Thailand, Vietnam, Burma, Brazil, Japan, Egypt, Philippines, USA, Myanmar

4.3 Why Rice?

Rice is undoubtedly one of the world's most strategic commodities, according to the International Rice Research Institute, as it is linked to food security, economic growth, employment, culture, and regional peace. Rice is a staple food for half of mankind, or more than 3 billion people worldwide, and it has been an important crop for many countries in meeting their food needs as well as contributing to their economies through rice exports.

“If you give me rice, I will eat today; if you teach me how to grow rice, I will eat every day.”- Mahatma Gandhi

Rice is one of the most important commodities in the world and directly feeds more people than any other crop. Rice is consumed worldwide. It has

worldwide acceptance and favorable conditions for growth. Rice is one grain that can be transformed into so many new food dishes for consumption. Laos, Bangladesh, and Cambodia rank the highest in rice consumption per capita. China with the highest population in world consumes the most rice in the world and consider it as its staple food. Rice is grown in almost every part of the world, except in Antarctica. Rice is also the fastest-growing staple food in Africa and Latin America. With rice the importance increases due to less perishable nature. If stored properly, uncooked white rice can remain fresh and edible for 10-30 years. Production cost of rice is also less and a single seed of rice could result in over 3,000 grains. Ayurveda, branch of medicine worships rice as a symbol of fertility, health, and prosperity.



Fig. 5 Rice and Food security (Source: Infographic by Maria Angela Peñafiel, IRRI)

The importance of rice as a food security grain lies in the fact that, unlike wheat which requires to be grounded and then baked into bread and other products to be consumed, de-husked rice can be eaten simply with salt or pickles on cooking with water. In terms of cooking too, rice can be boiled in large quantities at a time with water thereby being the grain that requires comparatively minimum processing from the time it's harvested to the plate of the individual. Another important feature of cooking rice is that one cup of raw white rice yields 3 cups of cooked white rice and one cup of brown wholegrain rice yields 4 cups of cooked rice. Cooked rice contains a lot of water, almost 70% of its total weight. If three cups of rice (90 grams of uncooked raw rice) per person per day can be provided with sufficient potable water, to every malnourished and hungry person, a lot could be achieved in terms of UNDP Goal #2 of eliminating hunger. Cooked rice besides is not high in calories. About 100 grams of cooked rice has 125 calories. Rice is rich in nutrients such as the vitamin B family, dietary fibre, protein fat, etc, virtually contains no fat or sugar and has low amounts of sodium and cholesterol, making it very beneficial for maintaining health. The most important reason is that rice is very fulfilling in nature and provides extreme energy to the body. Apart from this, rice is also healthy and full of minerals that fulfil the body's daily requirements.

4.4 Rice production around the globe

According to statistics, 497.69 million metric tons of milled rice were harvested globally in the harvesting year 2019-2020. Rice production has traditionally been dominated by Asian countries, indicating that rice is a staple

food in many of these countries. Rice, along with wheat and maize, is one of the world's main cereals. The yearly worldwide demand for maize, rice, and wheat is expected to reach about 3.3 billion tons by 2050, according to estimates. Rice output has to expand by 25% in the next 25 years to meet world demand, according to Statista and the International Rice Research Institute (IRRI). Rice is the world's second-largest staple crop (maize is the first), and it is consumed by more than half of the world's population. In 2018, almost 700 million tons of rice paddy were produced, with 90 percent (640 million) coming from Asian countries. Year after year, China and India alone account for half of world rice production and consumption. Despite its natural habitat of tropical marshes, this commercial crop is now widely produced in a variety of tropical and subtropical locations spanning four major ecosystem categories: rain fed lowland, rain fed upland, irrigated, and flood-prone agro ecological zones.

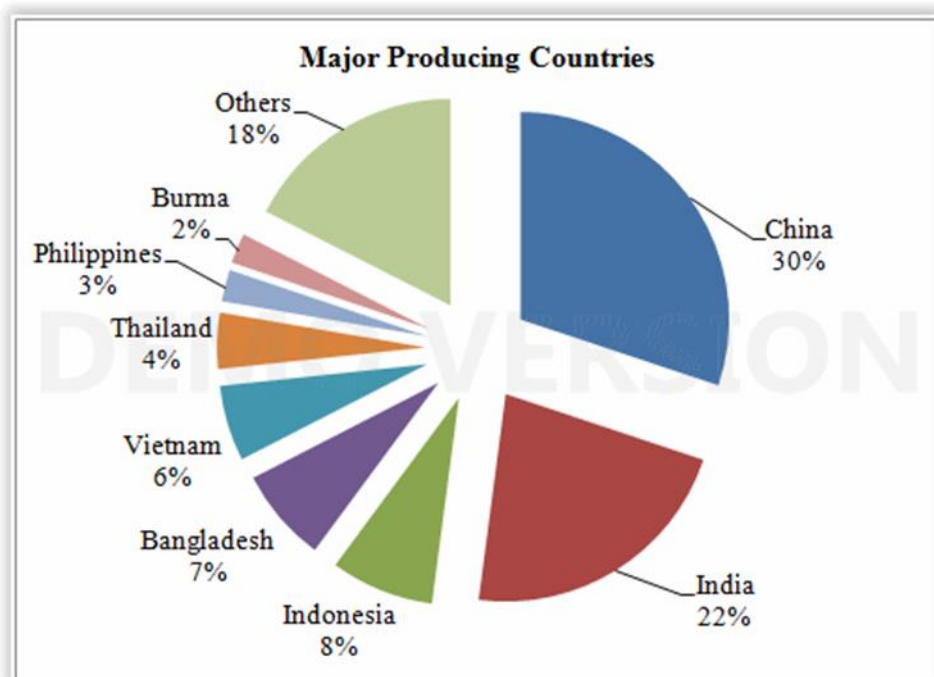


Fig. 6 Major producing countries of rice

China is the largest producer of rice contributing for over 30% of the world's rice output. India occupies the second position accounting for about 22% followed by Indonesia with 8%, Bangladesh with 7% and Vietnam with 6% of total rice production in the world. In terms of consumption also, China and India occupied the first two places contributing for about 31% and 20% respectively. Indonesia accounts for about 8.4% of world's rice exports followed by Bangladesh for about 7.4% and Vietnam for about 4.3% to the total rice consumption in the world. India has emerged as the major rice exporter since 2011-12 onwards replacing Thailand and accounts for about 28% of total rice exports in the world. Apart from India, exports from Vietnam also increased significantly from 2011-12 onwards, taking it to the second position with about 19% share in the total rice exports. However, Thailand regained its first position subsequently in 2013-14 and Indian rice exports are expected to moderate in 2014-15.

4.5 Rice, a sustainable solution

Rice is the world's most important staple food for more than half of the planet's population and will continue to be so in the coming decades. It provides up to a third of the calories in low- and middle- income countries. With expected population and income growth, the global demand for rice will continue to increase from 480 million tons of milled rice in 2015-16 to 536 to 551 million tons in 2030. Rice is such an important food in some countries that "to eat" means "to eat rice." Nearly half of the people in the world get approximately 50% of their calories from rice. Without rice, or something to take the place of rice, many people would go hungry. Botanically, rice is the seed of an aquatic grass. It has been cultivated for

more than 8,000 years. The Latin name for rice is *Oryza sativa*. There are many varieties of rice, such as Arborio, jasmine, and basmati. It also comes in red, black, and purple, with the colors coming from pigments in the bran layer. The more one learns about the different types of rice, the more one will appreciate this simple food. With diminishing and threatened land, water, labor, and energy resources and the problems brought about by climate change, rice will have to be produced, processed, and marketed in more sustainable and environment-friendly ways. And, to help lift farmers and other supply-chain actors and consumers out of poverty, rice production and processing need to be profitable for its actors while the grain itself needs to remain affordable to consumers. Hence, rice plays a crucial role in realizing the United Nations (UN) Sustainable Development Goal to end hunger, achieve food security and improved nutrition, and promote sustainable agriculture.

4.6 Importance and nutritional value of rice

The harvested rice kernel, known as paddy, or rough, rice, is enclosed by the hull, or husk. Milling usually removes both the hull and bran layers of the kernel, and a coating of glucose and talc is sometimes applied to give the kernel a glossy finish. Rice that is processed to remove only the husks, called brown rice, contains about 8 percent protein and small amounts of fats and is a source of thiamine, niacin, riboflavin, iron, and calcium. Rice that is milled to remove the bran as well is called white rice and is greatly diminished in nutrients. When white rice forms a major portion of the diet, there is a risk of beriberi, a disease resulting from a deficiency of thiamine and minerals. Parboiled white rice is specially processed before milling to retain most of the nutrients, and enriched rice has iron and B vitamins added to it. Following I have mentioned few more benefits of rice.

- Diabetes Control

Brown rice can help people with diabetes control their blood sugar. With a glycemic index of 64, white rice is more likely to spike blood sugar than brown rice, with a glycemic index of 55. Several studies have found that a high intake of white rice is associated with an increased risk of diabetes.

- Heart Health

Whole grains like brown rice contain more fibre than processed foods. Fibre can lower cholesterol and reduce risk of heart disease and stroke. Since fibre makes one feel full, one may find it easier to maintain a healthy weight. Also, brown rice contains vitamins and minerals that help the blood transport oxygen and perform other vital functions.

- Cancer Risk Reduction

Brown rice contains three distinct types of phenolic, which are antioxidants that occur naturally in plants. Antioxidants can reduce the risk of cancer by keeping free radicals from damaging cells. Phenolic occur in the bran layer of rice and in the germ, the reproductive part of a grain. When the bran is removed to make white rice, many of the phenolic are lost.

- Digestive Health

The insoluble fiber in brown rice promotes regular bowel movements. It can also prevent hemorrhoids and improve bowel control. Because it is gluten-free, brown rice is a good food choice for people with celiac disease. Those with celiac disease cannot digest some grains and may have difficulty getting all the nutrition they need.

5 Best Benefits of Rice



- **May help improve metabolism**
- **Gives relief from constipation**
- **Good source of energy**
- **Rich in vitamin and minerals**
- **Healthy gluten-free alternative**


www.organicfacts.net

Fig. 7 Benefits of rice (Source: Organic facts)

CHAPTER 5. OBSERVATIONS

5.1 Introduction

5.2 Project Rice

5.3 Costing and statistics

5.4 Synopsis on interviews

5.5 Observations on research questions

5.6 Detailed observations

5.1 Introduction

“A single grain of rice can tip the scale. One man may be the difference between victory and defeat.” – Emperor of China, Mulan.

Rice is an important grain provided in our meals. Those who eat rice are indeed fortunate; those who grow rice are even more fortunate; but, those who cook rice and provide it to others to satisfy their hunger are the luckiest. Rice is one of the best, sustainable solutions for putting end to hunger problems. I have mentioned the importance and nutritional value of rice in the last chapter. The author wants to put forth the thought that rice might not be a great example of providing full nutritious food for human beings but rice certainly has enough benefits and nutritious value for survival. Rice is a sustainable, practical and cost-effective solution. To have a fully nutritious meal with rice one can add different vegetables to it to increase the nutritious value of khichadi and thus prove to be more beneficial for consumption. But our project rice did not contain vegetables

as for me it was important to find a solution that was practical to achieve, cost-effective and also had long shelf life too. To have a practical experience regarding my solution rice, I experimented with a community kitchen. I provided khichadi to 500 people for 30 days. The khichadi was made with a few other ingredients focusing mainly on rice. No other grain was used in the process. Khichadi was provided on regular basis three times a day. I recorded the minute details, paid attention to its servings and tasted the khichadi also. There was a team of four volunteers with me to record and maintain the observations. There was a dedicated cook for this experiment. This experiment thus helped me in understanding the practical complexities and bring out the good experiment which can be implemented on larger scales.

5.2 Project Rice

As already discussed in the first chapter. The motivation behind this thesis is to help the hunger driven people and to find a practical solution to reduce hunger problem once and for all. When I was able to satiate my hunger for food on khichadi for seven to eight years alongside my eight other roommates, this gave me an idea to carry out a project where I can prove and understand whether rice can be treated as one of the best solutions. So I planned to carry out this project on a larger scale with 500 people. I decided to provide three times meals to 500 people for a month for the thesis. In collaboration with the Poorna foundation, this research was accomplished with ease. To estimate the project and costs for the same, I got in touch with the community kitchen and the chef and his staff assisted in making me understand the cost and amount of raw material requirements. I was able to get some sponsors for this project. I set up a committee of four volunteers. Two volunteers were present to look after the health of 500 people and hygiene.

Other two volunteers helped in formulating the data. Khichadi was made by the staff of the foundation itself. Khichdi is the ideal meal that can be made out of rice. Khichdi, whose main contents are rice, water, and ghee is a complete meal for any individual. Khichdi is a traditional Indian dish. People of all walks of life and ages can consume it. It's delicious and easy to digest. Consumption of Khichadi can be beneficial and good for survival. For the preparation of Khichdi, the following basic ingredients are; Rice, water, clarified butter (ghee), salt, turmeric, and red chilli powder. All raw materials used for food preparation, transportation, and gas are accounted for in the thesis project's cost. With the help of volunteers and the staff of the foundation under my supervision, this project was accomplished.

Before the project, we made excel sheets regarding the names, age and professions of those 500 people. We had their health reports regards to weight, blood pressure levels, sugar levels, oxygen etc recorded and monitored by a team of two physicians. We made sure that the data was accurate and kept a track of it for the next 30 days. Volunteers kept track of cleanliness, hygiene and the amount of wastage too! We provided khichadi in a manner that there won't be any wastage by serving them as per their requirement in small helpings as many times as they desired. We used the community kitchen hall for serving these meals. Our meals took place in two shifts. One shift consisted of 250 beneficiaries and the other shift consisted of the next 250 beneficiaries. I and volunteers along with the staff of the community kitchen, the cook, managed the project rice to the best of our capacity.

5.3 Costing and statistics

The below Table is based on the expenses made by me for the project. The rice cost includes the cost of transportation as well. Only labour cost is excluded

from the total expenses as it was prepared by the team of volunteers of the Poorna Foundation. All the data, numbers collected by them pertain to the Month of October 2021. The project began on 2nd October 2021 being the birth anniversary of Mahatma Gandhi. Following are the details of Project Rice.

Table 7. Calculation of the project rice

Sr no	Ingredients	Quantity	Price (Rs)
1	Rice Price for 1 Kg (transport expenses included till the community kitchen) = Rs. 35/-	2250 kg	78,750/-
2	Salt (10/- per Kg)	112 kg	1120/-
3	Turmeric (30/- per Kg)	225 kg	6750/-
4	Red Chili Powder (30/- per Kg)	225 kg	6750/-
5	Ghee (clarified butter) (490/- per Kg)	300 kg	1,47,000/-
6	Cooking Gas. 892/- per Gas cylinders	76 unit	67,792/-
	Total Expenses of the project		3,08,162/-

To calculate the cost per meal

Total expenses of the project.

Number of days = Per day cost for 500 persons

INR 308162/ 30 days = INR 10272/- per day for 500

For 3 meals = INR 6.84/-per meal per person cost

As per the calculations, cost of per meal per person is INR 6.84/-

The cost or expenses of one day (considering 3 Meals) for one person is INR 20.52/-

If the INR is converted into USD using the rate 1 USD = INR 74.79, it comes up to approximate USD 0.27/- per person per day.



Fig. 8 Bowl of khichadi

5.4 Synopsis on interviews

The interviews have provided me with information on the interviewees' feedback and responses. The interviews not only evaluated the responses but also assisted me in gathering information for my research questions. I am

thankful to all those beneficiaries who were part of my project rice and gave their honest and genuine responses which have paved my way in constructing the observations. The main outcome that was received from most of the interviewers was regarding the choice of grain. They specifically mentioned that the choice of grain i.e rice proved to be beneficial for them. Most of the people out of 500 beneficiaries were from below the poverty line, for them it was a joyous moment, that they were able to receive food for the whole month of October. **For such people, the paramount important aspect of Project rice was that they were not worrying about the food insecurity that they were facing since the pandemic. This helped in reducing their hunger related stress considerably for those below the poverty line.** Some were unable to procure food for themselves even before the pandemic. Another aspect that came to light was that rice was an easy to digest one grain meal which assisted in reducing health problems like acidity, obesity, heart problems, and maintenance of appropriate sugar levels. I and my volunteers also observed changes in their weight. Some of the participants were obese but due to intake of one grain only they were able to lose a few kilograms. Few interviewers also mentioned that they felt energetic throughout the day. They also added that rice khichadi tasted well. For some people, their family doctors had previously, recommended that they shift to a one grain only meal, to control their excessive weight. As I observed the responses some were reluctant to be a part of this as it was a compulsory thing to not eat anything except rice. But they added that as the days went by, they became comfortable with the routine and started preferring just rice to any other grain. Some of the fairly affluent interviewees, also expressed their satisfaction on seeing this

project and committed to doing similar projects in their local communities and neighborhoods as they found the project fairly inexpensive as compared to the benefits accruing from it. **This also helped me re-confirm the cost-effectiveness of rice as a one grain meal.** Interviews of these beneficiaries helped me in contemplating the practical impediments that one might face while implementing the solution for reducing the hunger crisis. Some of the unique responses to the interviews conducted by volunteers are mentioned in the Appendix. The answers are reduced in writing by the volunteers. These are certain responses from 30 individuals which is about 6% of the sample size.

5.5 Observations on research questions

(Answers)

Research question 1- Whether feeding people rice three times a day can reduce hunger problems and hunger-related stress for individuals?

Rice is an essential component of a well-balanced diet since it delivers nutrients while having no detrimental effects on health. Low amounts of fat, cholesterol and salt may also aid in the reduction of obesity and its related diseases. Feeding rice three times a day has the potential to reduce the hunger problem. Rice, for all of its merits, may not be a balanced solution, but it has certainly shown to be sustainable to control food hunger. Consuming Rice thrice a day i.e. in three meals equals around 1000 calories, which is more than the prescribed daily calorie intake. Rice combined with vegetables will undoubtedly boost the nutritious content of the khichadi. Rice production,

distribution, management, and storage may be done with adequate planning. It is a myth that the consumption of rice on regular basis can lead to obesity. As per Medical News Today, which quotes Prof. Tomoko Imai, “Rice is also low in fat and has a relatively low postprandial blood glucose level, which suppresses insulin secretion.” This fact can also be substantiated from the responses of the interviewers. Rice is enriched with many numerous benefits starting with fiber, magnesium, calcium etc. Magnesium is the structural component of bones that assists in hundreds of enzyme reactions involved in the synthesis of DNA and proteins and is required for proper nerve conduction and muscle contraction. Rice is well- known for being an excellent source of vitamins such as niacin, thiamin, and riboflavin, as well as for providing several health advantages. Brown rice is also high in fiber and manganese, both of which help with digestion and general health. It is also high in minerals like calcium, iron, salt, potassium, manganese, selenium, and copper, according to the USDA National Nutrient Database. It's a terrific gluten-free dish with very little fat to digest. Rice naturally does not contain any gluten and hence, causes no inflammation in the gut. Thus proving it to be good for digestion. It is thus recommended by doctors to consume rice when one is suffering from diarrhea. It can also deliver rapid energy, regulate and enhance bowel motions, and control blood sugar levels. It also aids in the supply of vitamin B1 to the human body. This starchy, high-calorie grain is often inexpensive, making it accessible to everybody and an important component of many diets. To highlight local flavors and taste preferences, each nation presents a separate rice dish: Risotto in Italy, Paella in Spain, Jambalaya in the southern United States, Coconut rice in Colombia, steamed

rice in China, rice and beans in Mexico, and sweet rice in Portugal, to mention a few. It is a key cereal crop that feeds more than half of the world's population and is an essential meal in many cuisines throughout the world.

Rice can certainly reduce health problems as one can observe from the responses that many beneficiaries of Project rice lost a few kilograms and it was because they were consuming a one-grain meal which has controlled their health issues like improper digestion, acidity induced problems, skin problems, heart problems and in some cases it has also helped in maintaining sugar levels as well. One who is unable to earn his food is under the stress of earning the means to buy food for himself and his family. It is already being discussed above how hunger has a great impact on physical and mental health as well! Hunger can drive people crazy and their ability to think rationally gets gradually reduced leading to problematic scenarios. It is important to note that hunger driven people are under a lot of stress and it can affect their health. If the hunger driven individual does not need to worry or stress out about having food, then he/she can rationally make decisions regarding their life and their sustainability rather than just focusing on satiating their needs. Making food available for hungry people can prove beneficial in assisting them not only with the attributes of physical health but also their mental health. The mental stress of not having the food or moreover stress regarding not possessing the means to buy food will get reduced. According to our interviewees also, it can be observed that once people knew that the foundation is going to provide food free of cost for a month people were happy and content as they were stress-free concerning their daily food intake. Thus, one can conclude that the consumption of rice can be considered a

sustainable solution to reduce hunger.

Research question 2 – Whether feeding people rice three times a day cost-effective and feasible and can it be scaled up to a larger scale?

The conclusion that I drew from the methodology of project rice and the feedback received from the participants of project rice is that feeding rice three times a day can be considered a cost-effective (USD 0.27 per person per day) and feasible solution to cure the world hunger problem. Rice is one of the most affordable grain accessible anywhere in the world. Rice may be served in a variety of ways, and all of the rice-based cuisines are very delicious: Biryani, Pulao, and Fried rice, to mention a few. Most importantly unlike other grain, rice does not need to be pulverized before use and hence saves the labour costing. Rice dishes are a tasty and nutritious combination. Even if one person only eats a tiny amount, it helps to feel his stomach full. This makes it quite simple to keep track of the calories. Rice is quite easy to cook and generally does not need many ingredients to upscale its taste. Rice is pocket friendly, has a long shelf life and is readily available around the globe. For our project rice, our chef procured 5 Tons of rice in the month of June 2021 about 2.25 Tons of rice was utilized in the month of October for project rice. The community kitchen has been still using the same rice till date for their daily meals, demonstrating the long shelf life of the grain.

In fact, over 60% of the World's population depends on rice as the primary staple food. It is observed that rice production is present in most regions around the globe due to its basic requirement of humidity, prolonged sunshine and an assured supply of water and wherever production is less in

quantity or not possible, rice may be brought from nearby locations where rice is available in ample amounts. In such a case, additional transportation costs must be considered.

A few well to do interviewees also reported, post the project, that they experimented the same one grain meal i.e., rice meals in their neighborhood and also reported similar observations that the cost was much lower and economical than serving meals consisting of other grains, dairy, vegetables, or fruits.

As mentioned in the statistical analysis section the average cost to feed per person per day i.e. three times is about USD 0.27/-. This cost can be further reduced as this cost was calculated based purely on Project Rice with 500 beneficiaries in picture. If the quantity increases, then the average cost will come down and eventually it would prove to be sustainable for applying the solution on larger scale. The expense for 1 month to feed 500 people was approximately INR 3,08,162/- i.e., 4046 US Dollars. Now if we upscale this project hypothetically to 50,000 people (i.e., 100X our Project) then as per the expense acquired from the project i.e., per day per person cost is 0.27 cents. Then the cost of serving 50,000 people for one day will be 13500 US Dollars i.e., 10,28,126 Indian Rupees. For the month, the expense of 50,000 people will be approximately 405000 US Dollars i.e., 3,08,43,794 Indian Rupees. This can be achievable only with collective efforts of authorities as well as the society. Project rice was conceptualized and implemented by me to understand the practical implications of providing rice to the needy people. Rice did prove sustainable and cost-effective as the expense of feeding 500 people for a month was minuscule and it surely paved the path for me: how

the project rice can be escalated on a higher scale. Project rice can be scaled up because if project rice was possible with 500 people for one month then it can be up scaled to 50,000 or 5,00,000 people and even more. Project rice was cost-effective and feasible to achieve as everything was planned and discussed with the chef and volunteers and procurement was in bulk. We together anticipated the cost of project rice, checked the prices of ingredients in the local market and afterwards took assistance from volunteers for collecting the fund to run project rice for 500 hundred people for a month. What was important during this project was to maintain the quality of khichadi. Before upscaling the project on a large scale, it is important to conduct a survey to get more insight regarding perceptions of people regarding the consumption of rice. The survey will help in clearing the practical hindrances. The need for data analysis will be required if the project is up scaled to a bigger number. Evaluation of every aspect is an important step when it comes to the implementation of project rice on local and regional levels. The larger the project, the cost will be reduced as wholesale rates can be applied and thus the project will prove to be beneficial for more and more people. Considering the expense of upscaling this project, seems like a big task to achieve but with proper funding and tapping the Corporate Social Responsibility (CSR) the target can be achieved. For example, in India, Entry no. 1 of Schedule VII in the Companies Act, 2013, in India, lists eradicating hunger as eligible cause for utilization of CSR. All corporates in India, have been mandated to spend 2% of their Net Profits exceeding INR 5 Crores on CSR. Thus, the financial backing of sponsors and donations will go a long way toward attaining this goal.

5.6 Detailed observations

Post the completion of project rice, the following findings were recorded by me:

- On an average, approximately 500 people were fed every day at the community kitchen at Parner.
- Khichdi proved to be a good dish for them as the people were able to satiate their food hunger at the same time have good benefits out of it.
- In a single bowl, Khichdi contained 350 calories. For the basic survival human needs minimum 1000 calories per day, as per UCLA Centre for Human Nutrition. So everyone on average received 1050 calories per day.
- With ghee in it, it proved to be good for digestion and also did not create any health issues for the people.
- People from all age group were served in this experiment.
- Portion of the Khichdi was as per demand of the people to avoid the wastage.
- The age group of the project was between 18 to 65.
- Male and females' visitors were part of the project.
- People from different background such as labourers, farmers, aged people, women, working staff, corporates, sportsperson, teachers and college going students.
- Health check-ups were carried and no health issues aggravation was observed in the results.

- After interview and feedbacks, it was observed that khichadi was easy to digest and kept the people energized for the whole day long.
- It did prove cost effective and easy to manage.
- The cooking time was few hours only thus it proved to be easy to manage the whole process.
- Obesity was reduced as only one grain was consumed by people.
- After the feedbacks it was noted that people felt energized throughout the day.
- After the project we discussed the happy index of this project. We on personal level had a word with all the people involved. The health issues very decreasing, obesity was controlled. Sugar levels were on normal side.

Controlled Blood Pressure

For anyone who suffers from hypertension, consuming rice is a good way to combat it. It contains very low amounts of sodium. Sodium is known for constricting arteries and veins in the body. Doing so increases the levels of stress or strain placed on the cardiovascular system while your blood pressure rises. In the long run, sodium can have effects on the heart and cause multiple heart conditions. Sticking to low-sodium food reduces these risks.

Controlled Blood Sugar levels

Rice also acts to lower blood sugar levels as well. Consuming rice slows down the glucose into the body gives the body's insulin time to properly

disperse the glucose throughout itself.

Promotes Heart Health

As mentioned before, rice is a natural anti-inflammatory. Its anti-inflammatory properties help to decrease the depositing rate of atherosclerotic plaque inside the blood vessel walls. This then decreases the risks for severe heart conditions such as heart attacks or strokes.

Prevents Obesity

Because rice has low amounts of sodium, fat, and cholesterol, it is a great aid in reducing obesity.

CHAPTER 6. IMPLICATIONS AND CONCLUSION

IMPLICATIONS

Food grains like wheat, jowar, bajra, corn and many others are often a part of our diet towards a healthy life. They are enriched with many nutrients and one might be amazed how nutrients are in ample as well as in little amounts but those amounts are beneficial for having a nutritious diet. But when I discuss satiating the hunger of those millions who are unable to receive food and fail the opportunity of possessing the food or buying the food from their incomes then for them rice is a sustainable solution. Rice is a very nutritious grain and has the potential to satisfy our hunger and provide strength for our daily activities. Rice has a very long shelf life which makes it easier for transportation to such areas where the production of rice is not possible or difficult. Other grains do not possess the benefit of long shelf life and thus storage and transportation become a hurdle for reaching out to those millions. Conditions favorable for the growth of any grain are specific, and there is a requirement of a specific type of environment for the growth of good quality crops. Rice mostly requires humid weather and water supply which is quite common in many countries. Rice can be cultivated at varied temperatures ranging from 21 Degrees to 37 Degrees which is phenomenally large as compared to any other grain. The environment, soil qualities, biotic conditions, and cultural practices all have an impact on rice growth and output. Rainfall and water, temperature, photoperiod, solar radiation, and, in rare cases, tropical storms are also environmental influences. Soil factors refer

to the kind of soil and its location in the uplands or lowlands. Weeds, insects, illnesses, and crop types are all dealt with by biotic factors. Rice may be cultivated in a variety of conditions, depending on the availability of water. Rice, in general, does not flourish in damp areas, although it can live and develop there, as well as endure flooding. Rice is produced throughout the world on larger scales. When it comes to making various food items with these grains, one can observe that rice is one of the easiest ways to cook and various dishes can be made out of rice. Asian rice (*Oryza sativa*) is most widely known and most widely grown, with two major subspecies (*indica* and *japonica*) and over 40,000 varieties. There are more than 1000 recipes involved with rice as the main ingredient. Rice can be turned into many forms like rice flour, it can be fermented for some dishes. In Arab cuisine, rice is an ingredient in many soups and dishes with fish, poultry, and other types of meat. It is used to stuff vegetables or is wrapped in grape leaves (*dolma*). When combined with milk, sugar, and honey, it is used to make desserts. In some regions, such as Tabaristan, bread is made using rice flour. Rice may be made into congee (also called rice porridge or rice gruel) by adding more water than usual, so that the cooked rice is saturated with water, usually to the point that it disintegrates. Rice porridge is commonly eaten as a breakfast food and is a traditional food for the sick.

Rice provides 21% of global human per capita energy and 15% of per capita protein. Although rice protein ranks high in nutritional quality among cereals, protein content is modest. Rice also provides minerals, vitamins, and fibre, although all constituents except carbohydrates are reduced by milling. According to the UNDP Human Development Report, approximately 70% of

the world i.e. 1.3 billion poor people live in Asia, where rice is the staple food. Rice is also the most essential crop for millions of small farmers who cultivate it on millions of hectares across the area, as well as the numerous landless labourers who earn a living by labouring in these fields. Rice output must continue to rise at least as quickly as the population, if not faster, in the future. Rice research that produces new technology for all farmers can help address this requirement while also contributing to global efforts to alleviate poverty. As of 2013, global rice consumption was 565.6 million metric tonnes (623.5 million short tonnes) of paddy equivalent (377,283 metric tonnes (415,883 short tonnes) of milled equivalent), with China consuming 162.4 million metric tonnes (179.0 million short tonnes) of paddy equivalent (28.7 per cent of global consumption) and India consuming 130.4 million metric tonnes (143.7 million short tonnes) of paddy equivalent (23.1 per cent of world consumption). Bangladesh has the largest per capita rice consumption, followed by Laos, Cambodia, Vietnam, and Indonesia. Rice consumption per capita grew by 40% between 1961 and 2002. Rice is Asia's most significant crop. In Cambodia, for example, rice farming accounts for 90 per cent of total agricultural land. Rice consumption in the United States has increased dramatically over the last 25 years, fueled in part by commercial uses such as beer manufacturing. Almost one in every five adult Americans now consumes at least half a cup of white or brown rice every day.

Studying all the points of comparison between grains it can be concluded that rice is a beneficial option for providing sustainable food. Thus with a comparative study with other grains, it is concluded by the writer that

rice is a sustainable and cost-effective grain for reducing the hunger and hunger related stress issues for people.

CONCLUSION

The organization, Oxfam says 11 people die of hunger each minute and that the number facing famine-like conditions around the globe has increased six times over the last year. 20 million additional people have been pushed to extreme food insecurity which has reached a total number of 155 million people in 55 countries. Due to Covid 19, the situation has worsened for hunger issues. Despite the pandemic, Oxfam said that global military spending increased by \$51 billion during the pandemic — an amount that exceeds at least six times what the U.N. needs to stop hunger (Oxfam, The Hindu, 2021).

Furthermore, according to the above-mentioned report, this is the world's most acute hunger problem condition to date. The worst-affected countries include Ethiopia, Madagascar, South Sudan, and long periods of conflict, bloodshed, and insecurity have accompanied catastrophic levels of hunger. Afghanistan, the Democratic Republic of Congo, Syria, and Yemen — some of the world's greatest hunger hotspots — have all been torn apart by conflict, and these countries are grappling with widespread hunger and poverty. Many nations, economists, and world leaders, including the United Nations, have made food security a priority.

Every year, the United States spends around \$5 billion on food aid and associated programs, but millions of people go hungry in the United States and around the world. (The Atlas of World Hunger, 2003). Hunger has

long been one of the world's most serious issues. "We know that a peaceful world cannot long survive with one-third rich and two-thirds hungry," Jimmy Carter famously said. "The struggle against hunger is mankind's war of liberty," John F Kennedy famously stated.

Over a majority of the world's hunger problems may be addressed if only one basic grain, such as rice, which has an average shelf life of roughly 5-7 years, could be farmed, stored, and transported sustainably and sensibly to places that are prone to famine. The best aspect is that this strategy does not necessitate expanding present rice-growing areas; instead, it focuses on reducing waste. The economic impact of the Covid 19 epidemic is as follows:

The worldwide hunger crisis has reached new heights as a result of the pandemic. Global economic activity has decreased by 3.5 per cent, but poverty has risen by 16%. The working class has been the hardest hit. In the year 2020, many of them will have lost their jobs. Since 2020, worldwide food costs have climbed by about 40%. (United Nations FAO Food Price Index Report, 2021). Importing and exporting food was difficult due to the tight borders.

Some of the world's most isolated countries have suffered far more as a result of this. Extreme weather events are expected to cost around \$50 billion by the year 2020. (Aon, Annual Report, 2021). Agriculture and food production were the hardest hit, and the consequences were devastating for poor countries and communities. According to the FAO, the overall number of people impacted by hunger in 2020 would be between 720 and 811 million. (Report on the State of Food Security and Nutrition, 2021). This number is

about equal to one-third of the world's population.

Hunger is a surprisingly complex subject, as demonstrated by a recent Twitter conversation between UN's David Beasley and Tesla's Elon Musk. When a UN official stated that just a small part of Elon Musk's \$300 billion fortune might help address world hunger, the Tesla CEO responded with his challenge: explain how \$6 billion would solve the problem, and he'll sell Tesla stock right now. This communication emphasized the problem and solution of world hunger (Twitter). Money and willpower is perhaps the only workable solution to this problem. I have endeavored to provide a solution to this problem by keeping Project Rice as the base. Through my experiment-Project Rice conducted in India in October 2021, I arrived at an average daily cost of US \$ 0.27 per person to provide three square meals that would be sufficient to sustain the person and maintain his health. There are 957 million people are suffering from hunger across 93 countries as per the United Nations Food Summit 2021 report. In case we hypothetically decide to feed each one of these, three square meals a day, as per our calculations the total cost per day would be US \$258.39 Million (957 million x US \$ 0.27). The annual costs to feed all would be US \$ 94,312.35 Million (the US \$ 258.39 x 365) or the US \$ 94.31235 Billion per year.

Though this number seems magnanimous, each country spends approximately higher than this each year just on their defense budgets. To give an estimate the world's three most populous countries' defense expenses budgets estimates in 2019 are - China (the US \$ 237 Billion), India (the US \$ 61 Billion) and the USA (the US \$ 750 Billion). These collectively spent the whopping US \$ 1048 Billion in 2019 on their national defense budgets! Not

just defense, but even education seems to have a priority in the country's budgetary allocations. The Union Budget of India (2022-2023) was announced by its finance minister on 1st February 2022 which has proposed budgetary allocations of up to 6% of the Country's GDP towards education in line with its National Education Policy (Speech by Nirmala Sitharaman in the Parliament of India, Budget 2022-2023).

Project Rice has been done with the whole and sole purpose of the welfare of the society on a global level and to get an effective cost for the meals.

CHAPTER 7. APPENDIX (INTERVIEWS)

FEEDBACK FORM		
Name of the beneficiary: Mr. Satish Sangale		
Profession: Salesman		
City of residence: Ahmednagar		
Age: 28		
Height: 187 cm		
Weight	Before: 75.8 kg	After: 74.4 kg
1. What were your first thoughts on Project Rice?	I was curious about this and wanted to see what it really was.	
2. How do you feel now that Project Rice has been completed?	Good. I liked it!	
3. Did eating rice for the entire day satisfy your appetite?	Yes, it did. I was surprised with that part. Initially I was reluctant to do this project as I felt just rice won't satisfy my hunger but surprisingly it did! Though I missed having sweet desserts.	
4. How do you feel after a month of eating rice khichadi?	If I have to answer this question in one line then I must say I felt light throughout the day when I consumed just rice.	
5. What changes did you notice in your health, and were there any specific health-related issues?	No specific changes. But one thing that I observed was I didn't face problem of acidity.	
6. What effect it had on your stress levels?	During one month I was feeling much better as I didn't consume such food which was unhealthy. My stress was under controlled and I felt better.	
7. Do you know how many people go to bed hungry all across the world?	In India? I think lakhs!	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Might be beneficial. I don't know but as far as this project it did help many village people nearby!	
10. What do you generally consume in your meals?	I generally eat lot of oily and spicy food with Bhakri.	

11. Do you have any other alternative for eradicating the food hunger crisis?	Probably giving rice and dal together.
12. What particular input do you want to provide me about the entire experiment?	It was good. You should do this often. When I roam around the village I find many poor people eating food from garbage or the leftovers. But I think such projects will certainly help them.
Specific suggestions: Try to add some vegetables in Khichadi.	

FEEDBACK FORM		
Name of the beneficiary: Mrs. Kunda Deshmukh		
Profession: Maid		
City of residence: Pune		
Age: 32		
Height: 151.6 cm		
Weight	Before: 51.9 kg	After: 52.2 kg
1. What were your first thoughts on Project Rice?	I didn't think much. Just got to know about this Project from one of my friend so came to see!	
2. How do you feel now that Project Rice has been completed?	I am feeling bad as this project is over. I liked Khichadi.	
3. Did eating rice for the entire day satisfy your appetite?	No, I felt like eating more and more rice. But after a week or so the amount was sufficient.	
4. How do you feel after a month of eating rice khichadi?	I felt good	
5. What changes did you notice in your health, and were there any specific health-related issues?	Nothing much	

6. What effect it had on your stress levels?	No
7. Do you know how many people go to bed hungry all across the world?	No idea
8. Do they know of any organizations that do similar experiments?	Mahila Ashram of our village help women of old age with food and clothing
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Good
10. What do you generally consume in your meals?	Rice mostly and sometimes Bhakri depending on availability of vegetables else only rice.
11. Do you have any other alternative for eradicating the food hunger crisis?	Rice and Masala Curd would be better together
12. What particular input do you want to provide me about the entire experiment?	Nothing just wanted to thank you for doing this project
Specific suggestions: -	

FEEDBACK FORM

Name of the beneficiary: Mr. Sudhir Mane		
Profession: Watchman		
City of residence: Nagar		
Age: 40		
Height: 183.8 cm		
Weight	Before: 75.6 kg	After: 74.3 kg
1. What were your first thoughts on Project Rice?	I didn't know what was happening and what will happen. There was a news in my neighbourhood that the foundation is giving free food for month. That's all I knew.	
2. How do you feel now that Project Rice has been completed?	I will give my blessings to people who helped in this Project and volunteers have really looked after us.	
3. Did eating rice for the entire day satisfy your appetite?	Yes, it did.	
4. How do you feel after a month of eating rice khichadi?	I felt much better and was happy to go to work after having my stomach filled with rice.	
5. What changes did you notice in your health, and were there any specific health-related issues?	Not much. I didn't pay much attention.	
6. What effect it had on your stress levels?	I didn't pay much attention but I realized I was happy about rice and how good it was.	
7. Do you know how many people go to bed hungry all across the world?	Around 1-2 million	
8. Do they know of any organizations that do similar experiments?	No. I do not know much about this. Sometimes I read in newspaper but don't remember it well.	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Yes, yes rice can be helpful. It did help me and my family.	
10. What do you generally consume in your meals?	Roti, Dal and Rice.	
11. Do you have any other alternative for eradicating the food hunger crisis?	Probably rice with some vegetables	

12. What particular input do you want to provide me about the entire experiment?	Nothing much
Specific suggestions: Add vegetables to rice in your next project.	

FEEDBACK FORM

Name of the beneficiary: Mr. Aditya Desai		
Profession: Student		
City of residence: Pune		
Age: 21		
Height: 183 cm		
Weight	Before: 85.5 kg	After: 82.7 kg
1. What were your first thoughts on Project Rice?	I was knowing about this Project since its baby steps. So I knew something was coming into picture in the organization.	
2. How do you feel now that Project Rice has been completed?	I feel good that I was part of this and enjoyed the month of eating just rice.	
3. Did eating rice for the entire day satisfy your appetite?	It did! Certainly I was happy to consume rice and generally also I love rice.	
4. How do you feel after a month of eating rice khichadi?	Khichadi was amazing. Tasty and with ghee it was just like cherry on the cake.	
5. What changes did you notice in your health, and were there any specific health-related issues?	I guess my weight reduced! That was really great. I was amazed but I loved this change.	
6. Do you know how many people go to bed hungry all across the world?	Yes, I read somewhere it was millions. Millions of people go to bed hungry. I am lucky I am not one of them but when I consume food I feel bad that there are so many who do not get the food for even their survival.	
7. Do they know of any organizations that do similar experiments?	Yes, I know about Akshaya Patr, and other few.	
8. What are your thoughts on rice as a solution of preventing the food hunger issue?	It can prove effective if properly implemented.	
9. What do you generally consume in your meals?	I love rice so mostly rice. During summers I prefer curd rice and during winters it is roti and vegetables.	
10. Do you have any other alternative for eradicating the food hunger crisis?	No, I think rice is the solution. I have read about this and I believe there are many positive aspects related to rice.	
11. What particular input do you want to	It was really a well-managed project and it should be implemented on larger scales.	

provide me about the entire experiment?	
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Specific suggestions:	
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FEEDBACK FORM

Name of the beneficiary: Mrs Suvarna Gokhale		
Profession: Housewife		
City of residence: Parner		
Age: 42		
Height: 154.5 cm		
Weight	Before: 67 kg	After: 65.78 kg
1. What were your first thoughts on Project Rice?	Nothing in mind as such	
2. How do you feel now that Project Rice has been completed?	It was okay	
3. Did eating rice for the entire day satisfy your appetite?	No, I felt the urge to eat some masala food.	
4. How do you feel after a month of eating rice khichadi?	I feel good. My weight reduced a bit.	
5. What changes did you notice in your health, and were there any specific health-related issues?	Not specific. As mentioned earlier my weight reduced.	
6. What effect it had on your stress levels?	Stress was managed during the project.	
7. Do you know how many people go to bed hungry all across the world?	Many people. In India there might be around lakhs.	
8. Do they know of any organizations that do similar experiments?	No idea.	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Probably good option as project turned out well.	
10. What do you generally consume in your meals?	Roti, dal, vegetables, Poha (Flattened rice)	
11. What change you observed after consuming rice?	Light weight, and good for digestion.	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	Nothing. Just a well organised project
Specific suggestions: no	

FEEDBACK FORM

Name of the beneficiary: Mr. Tanaji Dudhale		
Profession: Farmer		
City of residence: Nagar		
Age: 53		
Height: 187 cm		
Weight	Before: 75 kg	After: 74.89 kg
1. What were your first thoughts on Project Rice?	No specific thought to be honest.	
2. How do you feel now that Project Rice has been completed?	It was okay.	
3. Did eating rice for the entire day satisfy your appetite?	Yes	
4. How do you feel after a month of eating rice khichadi?	Good	
5. What changes did you notice in your health, and were there any specific health-related issues?	No change	
6. What effect it had on your stress levels?	-	
7. Do you know how many people go to bed hungry all across the world?	No	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Good option	
10. What do you generally consume in your meals?	Rice and chicken	
11. What change you observed after consuming rice?	No	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	-
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Mr. Narayan Devade		
Profession: Farmer		
City of residence: Parner		
Age: 65		
Height: 190 cm		
Weight	Before: 80.6 kg	After: 79.7 kg
1. What were your first thoughts on Project Rice?	It seemed like good project	
2. How do you feel now that Project Rice has been completed?	I missed being a part of this. My whole family was happy about this, as we enjoyed coming here and not taking the efforts to cook the food.	
3. Did eating rice for the entire day satisfy your appetite?	Yes	
4. How do you feel after a month of eating rice khichadi?	Normal	
5. What changes did you notice in your health, and were there any specific health-related issues?	Nothing much in particular as I consume rice every day.	
6. What effect it had on your stress levels?	No I do not know honestly, never thought about this.	
7. Do you know how many people go to bed hungry all across the world?	No	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Yes	
10. What do you generally consume in your meals?	Rice, Bhakri, Dal	
11. What change you observed after consuming rice?	No	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	-
Specific suggestions: Add more salt please	

FEEDBACK FORM

Name of the beneficiary: Mr. Sudeep Savale		
Profession: Student		
City of residence: Parbhani		
Age: 19		
Height: 187 cm		
Weight	Before: 79.6 kg	After: 80.4 kg
1. What were your first thoughts on Project Rice?	I wanted to come and just eat rice that was my thought.	
2. How do you feel now that Project Rice has been completed?	It was great to be a part of this	
3. Did eating rice for the entire day satisfy your appetite?	Yes to certain extent	
4. How do you feel after a month of eating rice khichadi?	It was different at first now I feel much better.	
5. What changes did you notice in your health, and were there any specific health-related issues?	Nothing	
6. What effect it had on your stress levels?	I do not know	
7. Do you know how many people go to bed hungry all across the world?	Around 500-600 million	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Maybe	
10. What do you generally consume in your meals?	Dairy products, vegetables, pizzas, burgers etc.	
11. What change you observed after consuming rice?	My body shape was quite maintained, felt energetic throughout the day.	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	No
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Mr. Abhishek Kale		
Profession: Electrician		
City of residence: Pune		
Age: 27		
Height: 188 cm		
Weight	Before: 86.5 kg	After: 85 kg
1. What were your first thoughts on Project Rice?	Heard from somewhere so wanted to take part.	
2. How do you feel now that Project Rice has been completed?	-	
3. Did eating rice for the entire day satisfy your appetite?	No	
4. How do you feel after a month of eating rice khichadi?	It was not good as I was bored with rice. But the taste of ghee with rice was good but after some days I didn't like it that much but I continued.	
5. What changes did you notice in your health, and were there any specific health-related issues?	Nothing much	
6. What effect it had on your stress levels?	Stress was managed.	
7. Do you know how many people go to bed hungry all across the world?	No idea but might be many.	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	No	
10. What do you generally consume in your meals?	Dal and Chappati	
11. What change you observed after consuming rice?	Nothing	

12. Do you have any other alternative for eradicating the food hunger crisis?	Chappati and vegetables
13. What particular input do you want to provide me about the entire experiment?	No
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Ms. Sumati Bhosale		
Profession: Teacher		
City of residence: Pune		
Age: 38		
Height: 170.7 cm		
Weight	Before: 55.6 kg	After: 51.8 kg
1. What were your first thoughts on Project Rice?	-	
2. How do you feel now that Project Rice has been completed?	-	
3. Did eating rice for the entire day satisfy your appetite?	Yes	
4. How do you feel after a month of eating rice khichadi?	It was a nice experiment.	
5. What changes did you notice in your health, and were there any specific health-related issues?	Yes, my weight reduced and that was really a good part. It reduced in great number and I totally avoided any other grain nor I ate oily or dairy products.	
6. What effect it had on your stress levels?	My stress was certainly reduced to a great extent.	
7. Do you know how many people go to bed hungry all across the world?	No	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Yes yes	
10. What do you generally consume in your meals?	Meat, chicken, rice and chappatis	
11. What change you observed after consuming rice?	Rice maintained my health well, reduced my weight, gave confidence as after weight loss my skin was good.	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	Nothing, Just good experiment
Specific suggestions: No	

FEEDBACK FORM

Name of the beneficiary: Ms. Vijaya Takale

Profession: Labour

City of residence: Parner

Age: 36

Height: 181.7 cm

Weight	Before: 48.9 kg	After: 50.3 kg
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1. What were your first thoughts on Project Rice?	-
2. How do you feel now that Project Rice has been completed?	-
3. Did eating rice for the entire day satisfy your appetite?	no
4. How do you feel after a month of eating rice khichadi?	It was good initially but then the taste was same I wanted some vegetables in it.
5. What changes did you notice in your health, and were there any specific health-related issues?	No
6. Do you know how many people go to bed hungry all across the world?	No
7. Do they know of any organizations that do similar experiments?	No
8. What are your thoughts on rice as a solution of preventing the food hunger issue?	May be I am not sure about this because the whole world is in picture. Regarding India it might happen.
9. What do you generally consume in your meals?	Chappati, fruits, vegetables, pulses
10. What change you observed after consuming rice?	Nothing much the usual.
11. Do you have any other alternative for	No

eradicating the food hunger crisis?	
12. What particular input do you want to provide me about the entire experiment?	Most probably change the taste once in a while.
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Ms. Ela Rathod		
Profession: Student		
City of residence: Pune		
Age: 23		
Height: 178.7 cm		
Weight	Before: 53.6 kg	After: 52.9 kg
1. What were your first thoughts on Project Rice?	I wanted to take part and help people in this project as well so I decided to stay in the foundation and be a part of this.	
2. How do you feel now that Project Rice has been completed?	It was good initiative and loved how things went smoothly for the whole month. Good co-ordination between the volunteers.	
3. Did eating rice for the entire day satisfy your appetite?	Yes of course	
4. How do you feel after a month of eating rice khichadi?	It helped me with my digestive problems	
5. What changes did you notice in your health, and were there any specific health-related issues?	-	
6. What effect it had on your stress levels?	-	
7. Do you know how many people go to bed hungry all across the world?	I read somewhere it is around 600 million in world.	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Yes it can prove to be a good fit for sustainable option.	
10. What do you generally consume in your meals?	Rice mostly and junk food	
11. What change you observed after consuming rice?	I was able to sustain myself on rice for the whole month and no junk food involved.	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	No
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Mr. Tushar Kolhe		
Profession: Driver		
City of residence: Nagar		
Age: 31		
Height: 189.6 cm		
Weight	Before: 92.4 kg	After: 89.5 kg
1. What were your first thoughts on Project Rice?	I was unaware about this project but wanted to give it a try as my family doctor suggested me to try one grain meal. So I thought this was a golden opportunity to start.	
2. How do you feel now that Project Rice has been completed?	I felt fantastic. I amazed to see the results.	
3. Did eating rice for the entire day satisfy your appetite?	Yes, it did, I was shocked because when my family doctor recommended me for one grain meals I was reluctant to pursue it, but then as days went by I became comfortable.	
4. How do you feel after a month of eating rice khichadi?	I felt really good and khichadi turned out extremely healthy. I was planning to take up wheat as my one grain meal but I didn't as with wheat I might have needed some more ingredients.	
5. What changes did you notice in your health, and were there any specific health-related issues?	I was over-weight, still I am! But eating rice three times a day help me reduce weight and I was unable to exercise due to my busy schedule and continuous travelling.	
6. What effect it had on your stress levels?	Stress issues was never a problem. I am a very calm and composed person.	
7. Do you know how many people go to bed hungry all across the world?	No idea	
8. Do they know of any organizations that do similar experiments?	There are many NGO's working for eradicating hunger.	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	I truly believed that with rice can eradication of hunger can be achieved. Need to implement it accurately but it can certainly prove beneficial to many people.	
10. What do you generally consume in your meals?	I eat everything.	
11. What change you observed after consuming rice?	I was able to wear my pant which was 5 years old. That was the biggest change that I observe. My wife says my facial	

	was good. I laughingly disagreed but I guess yes it did affect my facial skin in good way.
12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	Go ahead with such more projects so that people will understand the importance of it.
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Mr. Shantaram Pimple		
Profession: Bus driver		
City of residence: Parner		
Age: 44		
Height: 184.5 cm		
Weight	Before: 75.3 kg	After: 74.5 kg
1. What were your first thoughts on Project Rice?	-	
2. How do you feel now that Project Rice has been completed?	-	
3. Did eating rice for the entire day satisfy your appetite?	Kind of, sometimes	
4. How do you feel after a month of eating rice khichadi?	I felt okay. It was good to be a part of this. Something new to try.	
5. What changes did you notice in your health, and were there any specific health-related issues?	I am unable to discuss the details but light weight meal I believed that was helpful in working hours.	
6. What effect it had on your stress levels?	-	
7. Do you know how many people go to bed hungry all across the world?	No idea but children I see many.	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Possible	
10. What do you generally consume in your meals?	I eat bhakri and vegetables	
11. What change you observed after consuming rice?	As I earlier said, I am not very good in observation but yes digestion was quick and didn't face in digestion related issues.	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	-
Specific suggestions: -	

FEEDBACK FORM

Name of the beneficiary: Mr. Shubhankar Kachare		
Profession: Watchmen		
City of residence: Pune		
Age: 51		
Height: 180.3 cm		
Weight	Before: 68.6 kg	After: 69.1 kg
1. What were your first thoughts on Project Rice?	I heard from one of friend so wanted to see what project exactly is.	
2. How do you feel now that Project Rice has been completed?	I felt good. Was happy to see so many people coming together and enjoying khichadi	
3. Did eating rice for the entire day satisfy your appetite?	Yes, it did. Very few I felt it didn't.	
4. How do you feel after a month of eating rice khichadi?	Good	
5. What changes did you notice in your health, and were there any specific health-related issues?	I am diabetic patient so was afraid to go on one grain meal considering my sugar levels. But they are well maintained after this project as they were earlier.	
6. What effect it had on your stress levels?	I have no idea.	
7. Do you know how many people go to bed hungry all across the world?	million	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	I think rice has solve the problem well.	
10. What do you generally consume in your meals?	Rice, Chappati, Dal, sweets	
11. What change you observed after consuming rice?	There were minute changes but worth it.	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	Nothing.
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Mr. Vikram Pasole		
Profession: Accountant		
City of residence: Pune		
Age: 43		
Height: 185.5 cm		
Weight	Before: 71.6 kg	After: 70.3 kg
1. What were your first thoughts on Project Rice?	-	
2. How do you feel now that Project Rice has been completed?	-	
3. Did eating rice for the entire day satisfy your appetite?	Yes	
4. How do you feel after a month of eating rice khichadi?	I loved the taste of khichadi, it reminded me of the khichadi that my mother used to cook for us in the childhood.	
5. What changes did you notice in your health, and were there any specific health-related issues?	My belly fat reduced	
6. What effect it had on your stress levels?	no	
7. Do you know how many people go to bed hungry all across the world?	I guess around 1 million	
8. Do they know of any organizations that do similar experiments?	Yes, Swades Foundation, Snehalaya NGO, Akshaya Patr	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	I think it can	
10. What do you generally consume in your meals?	Everything! Mostly chicken.	
11. What change you observed after consuming rice?	Me weight reduced and more importantly belly fat reduced. I lost inches!	

12. Do you have any other alternative for eradicating the food hunger crisis?	no
13. What particular input do you want to provide me about the entire experiment?	Nothing
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Ms. Tabasum Tamboli		
Profession: Housewife		
City of residence: Pune		
Age: 38		
Height: 151.6 cm		
Weight	Before: 63.6 kg	After: 62.7 kg
1. What were your first thoughts on Project Rice?	-	
2. How do you feel now that Project Rice has been completed?	-	
3. Did eating rice for the entire day satisfy your appetite?	Sufficient	
4. How do you feel after a month of eating rice khichadi?	Good	
5. What changes did you notice in your health, and were there any specific health-related issues?	Nothing much.	
6. What effect it had on your stress levels?	I am not that observant but I guess it helped me to keep myself mentally and physically in good shape.	
7. Do you know how many people go to bed hungry all across the world?	Lakhs probably	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	I cannot anticipate, but looking at this project I believe that it is possible.	
10. What do you generally consume in your meals?	Chicken, meat, Bhakri, rice	
11. What change you observed after consuming rice?	No	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	No
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Ms. Tanaya Ahire		
Profession: Gym Trainer		
City of residence: Pune		
Age: 25		
Height: 156.8 cm		
Weight	Before: 70.4 kg	After: 65.6 kg
1. What were your first thoughts on Project Rice?	I felt bit over exaggerated that how just one grain will satiate the hunger. So I wanted to give it a try.	
2. How do you feel now that Project Rice has been completed?	I feel fantastic.	
3. Did eating rice for the entire day satisfy your appetite?	Yes, it did! I was able to carry my gym sessions and keep training my students. I suggested my students as well.	
4. How do you feel after a month of eating rice khichadi?	It was a good experience	
5. What changes did you notice in your health, and were there any specific health-related issues?	I felt light weight, my muscles were strong, my appetite was up to the mark.	
6. What effect it had on your stress levels?	-	
7. Do you know how many people go to bed hungry all across the world?	No	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Yes, probably	
10. What do you generally consume in your meals?	Very strict diet food, proteins generally	
11. What change you observed after consuming rice?	-	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	Try adding proteins to it!
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Mr. Dilip Shinde		
Profession: Professor		
City of residence: Nagar		
Age: 48		
Height: 191.4		
Weight	Before: 76.7 kg	After: 75.7 kg
1. What were your first thoughts on Project Rice?	-	
2. How do you feel now that Project Rice has been completed?	-	
3. Did eating rice for the entire day satisfy your appetite?	No	
4. How do you feel after a month of eating rice khichadi?	Nothing	
5. What changes did you notice in your health, and were there any specific health-related issues?	No	
6. What effect it had on your stress levels?	It had really nice effect on my stress as I was not eating much oily and spicy food I felt light weight and my mood was good.	
7. Do you know how many people go to bed hungry all across the world?	No idea	
8. Do they know of any organizations that do similar experiments?	Yes, there is an NGO in my town which provides afternoon meals to poor and needy people.	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	I don't think so	
10. What do you generally consume in your meals?	Chappati, Dal, vegetables and in morning fruits	
11. What change you observed after consuming rice?	No	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	No
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Mr. Amit Tyare		
Profession: Student		
City of residence: Parner		
Age: 22		
Height: 180.3 cm		
Weight	Before: 74.3 kg	After: 73.5 kg
1. What were your first thoughts on Project Rice?	I wanted to try something new. My food habits were very bad so wanted to see whether one grain meal can work or not.	
2. How do you feel now that Project Rice has been completed?	Oh my God! It certainly helped me and I felt sad that the project is completed. I wanted to ask the recipe for the khichadi	
3. Did eating rice for the entire day satisfy your appetite?	Yes, it did	
4. How do you feel after a month of eating rice khichadi?	Fulfilling	
5. What changes did you notice in your health, and were there any specific health-related issues?	No, there were no issues. I felt good and light weight and rice made me energised for the whole day.	
6. What effect it had on your stress levels?	I don't know about stress but I was happy regarding this project and it made me feel so good.	
7. Do you know how many people go to bed hungry all across the world?	Yes, I went and read on google. It is around 800 and it will reach 900 soon by 2030.	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	It will be a great success, many people will be able to satiate their hunger and not only hunger many problems will get solve if their hunger issue is looked after.	
10. What do you generally consume in your meals?	Rice and bhakri with vegetables and sometimes dal	
11. What change you observed after consuming rice?	-	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	-
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Ms. Jayashree Desai

Profession: Old age home beneficiary

City of residence: Pune

Age: 47

Height: 149.2 cm

Weight

Before: 54.3 kg

After: 52.5 kg

1. What were your first thoughts on Project Rice?	-
2. How do you feel now that Project Rice has been completed?	-
3. Did eating rice for the entire day satisfy your appetite?	Yes
4. How do you feel after a month of eating rice khichadi?	It was okay.
5. What changes did you notice in your health, and were there any specific health-related issues?	-
6. What effect it had on your stress levels?	-
7. Do you know how many people go to bed hungry all across the world?	-
8. Do they know of any organizations that do similar experiments?	-
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	-
10. What do you generally consume in your meals?	No
11. What change you observed after consuming rice?	Felt good hat I had something to eat.

12. Do you have any other alternative for eradicating the food hunger crisis?	-
13. What particular input do you want to provide me about the entire experiment?	-
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Ms. Manasi Savare

Profession: Lawyer

City of residence: Pune

Age: 28

Height: 161.3 cm

Weight

Before: 61.3 kg

After: 57.4 kg

1. What were your first thoughts on Project Rice?	-
2. How do you feel now that Project Rice has been completed?	-
3. Did eating rice for the entire day satisfy your appetite?	Yes
4. How do you feel after a month of eating rice khichadi?	It was nice
5. What changes did you notice in your health, and were there any specific health-related issues?	My cholesterol level was high that I came to know from the tests that were done earlier but after one month my cholesterol level reduced and significant weight loss.
6. What effect it had on your stress levels?	Stress levels were managed well I guess, didn't face any issues.
7. Do you know how many people go to bed hungry all across the world?	No idea
8. Do they know of any organizations that do similar experiments?	No.
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Yes, it can solve.
10. What do you generally consume in your meals?	Rice and chappati
11. What change you observed after consuming rice?	My cholesterol levels were maintained

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	No
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Mrs. kumbhar supriya		
Profession: Doctor		
City of residence: Nagar		
Age: 57		
Height: 156 cm		
Weight	Before: 65.6 kg	After: 63.6 kg
1. What were your first thoughts on Project Rice?	Nothing much.	
2. How do you feel now that Project Rice has been completed?	It was indeed good initiative. They did good work and may god bless them for this.	
3. Did eating rice for the entire day satisfy your appetite?	Yes it does.	
4. How do you feel after a month of eating rice khichadi?	My weight reduced a bit but I felt good and helped me to maintain good digestion.	
5. What changes did you notice in your health, and were there any specific health-related issues?	No.	
6. What effect it had on your stress levels?	-	
7. Do you know how many people go to bed hungry all across the world?	No	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Yes	
10. What do you generally consume in your meals?	Generally I consume wheat or rice bhakri with masala dal.	
11. What change you observed after consuming rice?	Not specific	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	You should state the importance of rice to the people
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Mr. Rakesh Sonavane

Profession: Vendor

City of residence: Nagar

Age: 55

Height: 186.2 cm

Weight	Before: 85.5 kg	After: 84 kg
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1. What were your first thoughts on Project Rice?	I didn't know about the project.	
2. How do you feel now that Project Rice has been completed?	I loved being a part of the project.	
3. Did eating rice for the entire day satisfy your appetite?	Yes	
4. How do you feel after a month of eating rice khichadi?	Good	
5. What changes did you notice in your health, and were there any specific health-related issues?	Not much	
6. What effect it had on your stress levels?	Didn't pay much attention towards it.	
7. Do you know how many people go to bed hungry all across the world?	No	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	It is possible	
10. What do you generally consume in your meals?	Rice, bhakri and dal	
11. What change you observed after consuming rice?	No	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	No
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Mr. Prasad Nange		
Profession: Businessmen		
City of residence: Parner		
Age: 50		
Height: 187.5 cm		
Weight	Before: 71.6 kg	After: 70.5 kg
1. What were your first thoughts on Project Rice?	I came to know regarding this project from my employees. They were also a part of this project so I joined them.	
2. How do you feel now that Project Rice has been completed?	Indeed, it was a great success! I saw many people with happy faces.	
3. Did eating rice for the entire day satisfy your appetite?	Yes	
4. How do you feel after a month of eating rice khichadi?	It was good and tasty	
5. What changes did you notice in your health, and were there any specific health-related issues?	Changes were really good. I was feeling light weight, energetic and wasn't lazy for a change.	
6. What effect it had on your stress levels?	Consumption of rice made me realize that stress was controlled and it made me feel much better.	
7. Do you know how many people go to bed hungry all across the world?	Yes, there are millions who go to bed hungry. Not knowing the exact number.	
8. Do they know of any organizations that do similar experiments?	Yes I know about few Akshaya Patr, Suman Foundation, Poona Blind People's NGO.	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Yes, it is a good option	
10. What do you generally consume in your meals?	Everything	
11. What change you observed after consuming rice?	-	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	Just trying different varieties.
<p>Specific suggestions: I would like to do a similar project and experiment in my locality and neighbourhood as the one meal Rice concept is very inexpensive as compared to the benefits accruing from it.</p>	

FEEDBACK FORM

Name of the beneficiary: Mr. Rajendra Salunke		
Profession: Businessmen		
City of residence: Pune		
Age: 56		
Height: 183.4 cm		
Weight	Before: 87.4 kg	After: 86.3 kg
1. What were your first thoughts on Project Rice?	-	
2. How do you feel now that Project Rice has been completed?	-	
3. Did eating rice for the entire day satisfy your appetite?	Yes, mostly	
4. How do you feel after a month of eating rice khichadi?	After a month of eating rice, I was quite happy as consuming rice suited my day and I was energetic for the day.	
5. What changes did you notice in your health, and were there any specific health-related issues?	-	
6. What effect it had on your stress levels?	I was happy with rice so my stress levels were maintained.	
7. Do you know how many people go to bed hungry all across the world?	No	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	It is quite good option but needs to be implemented properly.	
10. What do you generally consume in your meals?	Wheat and maida products, rice, sweets	
11. What change you observed after consuming rice?	Consuming rice every day helped me in understanding the importance of having food every day.	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	No
Specific suggestions: I would like to do a similar- Rice as a one grain meal experiment in one of Pune City's slum area.	

FEEDBACK FORM

Name of the beneficiary: Mr. Bapat Govind

Profession: Priest

City of residence: Parner

Age: 36

Height: 183.6 cm

Weight	Before: 88.4 kg	After: 85.3 kg
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1. What were your first thoughts on Project Rice?	-
2. How do you feel now that Project Rice has been completed?	-
3. Did eating rice for the entire day satisfy your appetite?	Yes
4. How do you feel after a month of eating rice khichadi?	Good
5. What changes did you notice in your health, and were there any specific health-related issues?	-
6. What effect it had on your stress levels?	My stress was well maintained.
7. Do you know how many people go to bed hungry all across the world?	No idea
8. Do they know of any organizations that do similar experiments?	-
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	No idea it was a successful here in Parner though so there is a possibility it will work.
10. What do you generally consume in your meals?	Rice mostly
11. What change you observed after consuming rice?	No

12. Do you have any other alternative for eradicating the food hunger crisis?	-
13. What particular input do you want to provide me about the entire experiment?	-
Specific suggestions:	

FEEDBACK FORM

Name of the beneficiary: Mr. Kamate Sudhir		
Profession: Gardener		
City of residence: Pune		
Age: 60		
Height: 182.6 cm		
Weight	Before: 69.4 kg	After: 68.5 kg
1. What were your first thoughts on Project Rice?	Nothing much.	
2. How do you feel now that Project Rice has been completed?	It was indeed good initiative. They did good work and may god bless them for this.	
3. Did eating rice for the entire day satisfy your appetite?	Yes it does.	
4. How do you feel after a month of eating rice khichadi?	My weight reduced a bit but I felt good and helped me to maintain good digestion.	
5. What changes did you notice in your health, and were there any specific health-related issues?	No.	
6. What effect it had on your stress levels?	As my weight it reduced, it helped me in controlling my stress level.	
7. Do you know how many people go to bed hungry all across the world?	No	
8. Do they know of any organizations that do similar experiments?	No	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	Yes	
10. What do you generally consume in your meals?	Generally I consume wheat or rice bhakri with masala dal.	
11. What change you observed after consuming rice?	Not specific	

12. Do you have any other alternative for eradicating the food hunger crisis?	No
13. What particular input do you want to provide me about the entire experiment?	You should state the importance of rice to the people
Specific suggestions: Yes, in next project you can experiment with more dishes of rice.	

FEEDBACK FORM

Name of the beneficiary: Mrs. Bharekar Ankita		
Profession: Beautician		
City of residence: Pune		
Age: 45		
Height: 154.5 cm		
Weight	Before: 56.6 kg	After: 55.2 kg
1. What were your first thoughts on Project Rice?	I was surprised to see so many people in project and that too for a month the project was going to take place that was my initial thought	
2. How do you feel now that Project Rice has been completed?	It was good	
3. Did eating rice for the entire day satisfy your appetite?	Yes	
4. How do you feel after a month of eating rice khichadi?	I felt good. I would have love to have some papad with it and some vegetables as well.	
5. What changes did you notice in your health, and were there any specific health-related issues?	I understand my skin well. I felt my face was brightening up. It is said that rice contains white starch and that is too for facial skin.	
6. What effect it had on your stress levels?	I felt better.	
7. Do you know how many people go to bed hungry all across the world?	Yes, around 50-70 million I guess.	
8. Do they know of any organizations that do similar experiments?	There is a small organisation at my native town named "Apl Ghar" that works for such food projects and tend to give food to hungry people.	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	I think rice has that capacity to satiate the hunger of needy people.	
10. What do you generally consume in your meals?	Rice mostly.	
11. What change you observed after consuming rice?	No change specifically as I consume mostly rice.	

12. Do you have any other alternative for eradicating the food hunger crisis?	No, I think now rice can be the solution because we all who participated in this project sustained very well on rice.
13. What particular input do you want to provide me about the entire experiment?	Do it for more than a month.
Specific suggestions: No	

FEEDBACK FORM

Name of the beneficiary: Mr. Rahul Devgire		
Profession: Delivery guy		
City of residence: Pune		
Age: 27		
Height: 187.5 cm		
Weight	Before: 71.4 kg	After: 70.8 kg
1. What were your first thoughts on Project Rice?	No specific thought to be honest.	
2. How do you feel now that Project Rice has been completed?	I would love to come again for such project.	
3. Did eating rice for the entire day satisfy your appetite?	Yes, but having more vegetables or sometimes wheat rotis would have been preferred.	
4. How do you feel after a month of eating rice khichadi?	I felt good and it was really a good project.	
5. What changes did you notice in your health, and were there any specific health-related issues?	I was not feeling lazy and sleepy. I was energetic whole day.	
6. What effect it had on your stress levels?	No idea	
7. Do you know how many people go to bed hungry all across the world?	No	
8. Do they know of any organizations that do similar experiments?	Mid-day meals in school I have heard. That did benefitted lots of students who come from poor background and cannot afford food every day.	
9. What are your thoughts on rice as a solution of preventing the food hunger issue?	No idea	
10. What do you generally consume in your meals?	Roti and Dal	
11. What change you observed after consuming rice?	Changed as in I felt satiated throughout the day and it was good.	

12. Do you have any other alternative for eradicating the food hunger crisis?	Probably wheat
13. What particular input do you want to provide me about the entire experiment?	It was good but might be better with masala
Specific suggestions: Try adding vegetables	

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