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Traditional use of insects and amphibia as food in Manipur and its correlation with global warming

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Abstract
As the destruction of the environment is increasing day by day in spite of the broadcast of the scientists of the world of the various dreadful strategies, the shortage of food is increasing drastically. The state of Manipur depends on the imported food and commodities every day. When there is general strike or economic blockade in the national highways for one week or one month or so, the prices of daily commodities will go high abnormally. Due to influx and uncontrolled reproduction of the inhabitants, and also due to government developmental programmes, the area of cultivable land is decreasing drastically. The available cultivable land also cannot be used for multiple cropping due to poor irrigation. The only alternative the natives can develop is tourist places to increase the state economy and culture of indigenous edible insects and amphibia for supplementing the shortage of food and malnutrition of the growing children. Here the indigenous use of amphibia and insect in making normal food item and use of the pupae of silkworms for balancing malnutrited children are presented which need no irrigation.

Keywords: Shortage of food, global warming and malnutrited

Introduction
Global warming is now a normal vocabulary in the minds of all the citizens of the world. In spite of all possible trials of the world's top leaders and scientists, the temperature of the earth's atmosphere is increasing day by day.
By 2050 the world's population will reach 9.1 billion, 34 percent higher than today. Nearly all of this population increase will occur in developing countries. Urbanization will continue at an accelerated pace, and about 70 percent of the world's population will be urban (compared to 49 percent today). Income levels will be many multiples of what they are now. In order to feed this larger, more urban and richer population, food production (net of food used for biofuels) must increase by 70 percent. Annual cereal production will need to rise to about 3 billion tonnes from 2.1 billion today and annual meat production will need to rise by over 200 million tonnes to reach 470 million tonnes (Food and Agriculture Organization of the United Nations, 2009) [2].
Globally almost 870 million chronically undernourished - new hunger reports (Food and Agricultural Organization of the United Nations, 2012) [3]. Economic Growth is Necessary but not sufficient to accelerate reduction of hunger and malnutrition. So it is very much needed to search for other alternatives for food which need no irrigation and not much labour.

Methodology
Material and method includes interview of elderly local persons and personal visit to hill markets and personal experience.

Discussion
Scarcity of food due to decrease of cultivable land area as a result of overpopulation and government developmental plans is increasing day by day of which malnutrition in poverty line children is the resultant outcome in Manipur. So we have to think of food sources which do not need much land area and irrigation. Here we can take up traditional use of local insects and amphibia as food source.

The tribes in the hills as well as in the plains of Manipur use to take dry amphibians specially frogs. The small frogs are dried in the sun as well as with heat from fire wood and made to string into chains with a bamboo wire and sold in the markets just like the smoked fishes. In the rainy season innumerable frogs are jumping here and there. When they are young about the size of two to three centimeters of the abdomen, they will be caught and made to dry with heat from sunlight as well as from fire wood. The dried frogs are sometimes made into fermented food just like the fermented fish. The fermented frogs are roasted and made crushed with chilly and salt and eaten as chatni. The killed fresh frogs are also sold without processing in the markets of Senapati, Chandel and other hill districts of Manipur (Figs. 1 to 3).

Fig 1: Small killed fresh frogs sold in the market

Fig 2: Vendors of frog and other items for customers

Fig 3: One customer purchasing small frogs

Fig 4: Drought in southern Africa Getty

Insects as food

Among insects, the pupae of silkworms are high in protein content and the roasted pupae when given to malnutrited children to eat, they can recover very quickly to normal condition.

An insect known as Naoseck (*Lethocercus indicus)* is also used traditionally after roasting in making chatni with fermented fish.

The larvae of bee are used as a delecious food in Manipur.

Correlation of amphibian and insect food with global warming

The human population is increasing day by day, but the area of the earth is fixed forever. As a result the area of cultivable land is also decreasing day by day from either governmental development plans or inhabitation by the citizens. Consequently, the demand of food is increased drastically whereas production is decreasing day by day.

A time may come when there is no food to eat and no fresh water to drink. So we must think of other food resources which do not need much irrigation and much labour. Local clubs can take up plans to plant castor plants in river banks and develop small house to house eri culture industries for more production of silkworm pupae and yarns.

The world is facing a future of food shortages and mass migration as a consequence of widespread water shortages caused by global warming, the outgoing head of the World Meteorological Society has warned (Tom Bawden, 2015). Hunger, drought and disease could affect millions of people, especially in southern Africa Getty (Fig. 4).

There are more than 1,900 edible insect species on Earth, hundreds of which are already part of the diet in many countries. In fact, some two billion people eat a wide variety of insects regularly, both cooked and raw; only in Western countries does the practice retain an "ick" factor among the masses. Why eat something that we usually swat away or battle with insecticides? For starters, many insects are packed with protein, fibre, good fats, and vital minerals—as much or more than many other food sources. One example: mealworms, the larval form of a particular species of darkling beetle that lives in temperate regions worldwide. Mealworms provide protein, vitamins, and minerals on par with those found in fish and meat. Another healthful treat: small grasshoppers rank up there with lean ground beef in protein content, with less fat per gram. (Related video: Family learns how to cook and prepare mealworms.). And raising and harvesting insects requires much less land than raising cows, pigs, and sheep. Insects convert food into

protein much more efficiently than livestock do—meaning they need less food to produce more products. They also emit considerably fewer greenhouse gases than most livestock (think gassy cows). Entomophagy, the consumption of insects as food, is also a safe and healthy way to help reduce pest insects without using insecticides. Plus, gathering and farming insects can offer new forms of employment and income, especially in developing tropical countries where a lot of "edibles" live. That helps to explain why 36 African countries are "entomophagous," as are 23 in the Americas, 29 in Asia, and even 11 in Europe. With so many species swarming the globe it's difficult to parse out the specific ones most often eaten, so we'll go a little broader—to the top edible insect groups. According to my favourite cookbook, *Creepy Crawly Cuisine* by biologist Julieta Ramos-Elorduy, a leading proponent of the entomophagy movement, here are the eight critters most often ingested worldwide (Jennifer S. Holland 2013) [5].

Toads are of course poisonous. A 57 year old South Korean man died after eating poisoned toads, he mistook for edible bullfrogs (Darren Boyle For Mail online, 2017) [1]. The 57-year-old man died several hours after mistakenly eating a poisonous toad. Police said a forensic analysis of the mean discovered the toxin bufotenine. The victim captured the five amphibians near Daejon, in central South Korea Police said the poisonous toads look identical to the bull frog which is a delicacy.

Conclusion

From all of the above discussions and witnesses it is customary to identify the particular animal food before consumption so that any unwanted things will not happen. After all, eating small animals like larvae of bee, bull frogs and insects for protein supplement is a relief to some extent to the shortage of food for the human beings due to overpopulation and global warming. So it will be beneficial for us to culture the frogs and insects as small scale industries which need no irrigation. It can be done with poultry and cattle rearing. It can be started with a small start-up money and all people starting from below poverty line will be able to afford the start-up money. It will also give an alternative to unemployment problem due to overpopulation.

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References

1. Darren Boyle for Mail online. South Korean man dies after eating poisoned Toads, he mistook for edible bullfrogs. Published: 12:13 BST, 2017, Updated: 12:14 BST, 2017.
2. Food and Agricultural Organization of the United Nations. Globally almost 870 million chronically undernourished - new hunger reports, 2012.
3. Food and Agriculture Organization of the United Nations. How to Feed the World in 2050 - www.fao.org/fileadmin/templates/wsfs/, 2009.
4. Interaction with people in the hills and valley of Manipur.
5. Jennifer Holland S. U.N. Urges Eating Insects; 8 Popular Bugs to Try: From beetles to stinkbugs, people in dozens of countries eat insects. National Geographic Published, 2013.
6. Tom Bawden, Envvironment Editor. 20:59 GMT. Climate change: World 'faces food shortages and mass migration' caused by global warming; World Meteorological Society chief warns dwindling water supplies is greatest of all dangers posed by climate change. Visit to hill market places of Manipur, 2015.