

NUTRITIONAL SURVEY OF TEA WORKERS
ON CLOSED, RE-OPENED, AND OPEN TEA PLANTATIONS OF THE DOOARS
REGION, WEST BENGAL, INDIA

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Birpara, Jalpaiguri District, West Bengal

By

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ABSTRACT

Objective: To determine the nutritional status of tea workers on closed, recently re-opened (sick), and normally functioning gardens. **Setting:** Six tea gardens in the Dooars Region, Jalpaiguri District, West Bengal, India. **Methods:** 120 families (609 individuals) were surveyed in their homes on the labor lines of six tea gardens. **Results:** Based on World Health Organization criteria for Body Mass Index, all four open gardens surveyed can be labeled as “starving communities” or “at critical risk for mortality from starvation.” Based on daily caloric intake, 42.5% of the closed garden populations classify as Below Poverty Line (BPL), followed by 40% BPL in sick gardens, both of which are significantly higher than the national average. **Conclusion:** Malnutrition exists on all six gardens surveyed. Even workers on sick and open gardens endure extreme lean periods due to decreased or delayed wage payments and food rations, as well as inconsistently provided benefits that are due by law. Legally mandated worker benefits (especially for pregnant and breastfeeding women) and government relief programs like Integrated Child Development Scheme (ICDS) and the Mid-Day Meal Scheme (MDMS) are irregular, inconsistent, and in some cases, inadequate or entirely absent. Garden managers and government aid suppliers need to (1) improve the quality and efficiency of their programs and (2) educate the workers as to the existence of these programs. This latter point is essential and urgent. Many workers have no idea as to the existence of relief or ration programs and, when they do, have no knowledge as to procedures. They are also uninformed as to their rights under existing labour laws.

I. INTRODUCTION

Like most tea producing areas of Northeastern India, the Dooars Region tea industry suffered a critical period from 2002 to 2004; during this time 22 of the 548 registered tea gardens in Dooars closed their doors, effectively abandoning resident workers and their families. Nearly 100,000 people (workers and their dependants) were directly affected by the closures, deprived of food rations, wages, health care, electricity, drinking water, and transportation to and from schools for the children. This period was also marked by a surge of starvation deaths on closed gardens which led, in January 2004, to the filing of an IA (Interim Assessment) in Writ Petition 196/2001 in the Supreme Court (Right to Food and Work). This, in turn, led to limited government measures to provide rations and temporary work to tea workers in closed gardens. In addition, special efforts were made to find new employers or persuade the old employers to reopen their gardens.

All but two of the 22 closed gardens were subsequently reopened by the beginning of the monsoon season, 2005. However, at the time of this report, most remain insolvent, or “sick,” with worker conditions as poor as ever, and may soon shut their doors again. Despite efforts to ease the workers’ suffering, reports of hunger, malnutrition, and starvation deaths persist on closed, sick, and open gardens. Such reports have been made in both the local and international media, in statements from trade union leaders, and in personal accounts from the workers themselves.

This survey of tea worker nutrition on open, sick, and closed gardens was undertaken in order to verify—or disprove—the aforementioned reports of hunger and starvation deaths, and to collect statistically relevant evidence of malnutrition. It should be noted that management’s permission to survey on open gardens was granted on condition that these gardens’ names not be mentioned in the final report; for this reason, the authors will refer to the gardens simply by their status as “open,” “sick,” and “closed.”

II. METHODOLOGY

The study was conducted from August–October, 2005. The survey team, which was based in the town of Birpara, Jalpaiguri District, visited 120 families on six gardens. Twenty families, randomly selected from various labor lines, were surveyed on each garden (except in a few cases on open gardens, where families were selected by a garden health assistant or welfare officer). The six gardens consisted of two closed gardens, two struggling, or sick gardens, and two regularly running open gardens which had not closed during the crisis period. Visits were programmed so as to find the maximum number of household members at home which, for operating gardens (sick and open), meant from 4 p.m. to 7 p.m., when workers had just returned home from the fields and factory. On closed gardens, the team was able to survey all day, though a few family members were not present due to provisional government-sponsored work programs.

At each garden, the survey team split into two pairs to conduct their house visits; after determining the exact identity of the household members, their name, age, gender, height,

weight, and occupation were recorded. Heads of family (preferably the mother or whoever was in charge of the cooking) were then walked through the questionnaire, which concerned the family's diet, health, deaths during the past three years, and a special series of questions for pregnant and breastfeeding women. The questionnaire also addressed the presence and quality of certain government relief programs and workers' awareness of these programs as well as their rights under current labour laws. In general, the survey team spent 30 minutes at each household and were able to survey anywhere from five to fifteen families per day.

Challenges encountered included physical access to gardens which lay beyond dry riverbeds which, after heavy rains, would fill and force the team to cancel the day's program. In addition, it took longer than expected to obtain managerial permission to survey open gardens. These factors contributed to the originally planned sample size being decreased from 8 to 6 gardens (160 to 120 families). Also, the team occasionally encountered language barriers when presented with non-Hindi or Bengali speaking families, in which case the team obtained help from locals to decipher the tribal and Nepali languages.

There was also some concern of not obtaining a true representative sample of families on open gardens where managers assigned their staff members to select the 20 families and accompany the team, as happened on more than one occasion. However, team members were nearly always successful when they insisted on surveying independently (*i.e.* without the possibly intimidating presence of staff).

TABLE 1: TOTAL NUMBER OF WORKERS AND FAMILY MEMBERS SURVEYED:

Garden Status	NO. ADULTS SURVEYED	NO. CHILDREN (<18)	TOTAL NO. SURVEYED
OPEN #1	60	46	106
OPEN #2	47	31	78
SICK #1	56	53	109
SICK #2	49	52	99
CLOSED #1	56	58	114
CLOSED #2	63	40	103
TOTALS:	331	280	609

III. RESULTS

A. Body Mass Index (BMI)

The measurement of growth and body composition, also called anthropometric measurement, is a widely used method to assess health and nutrition status of both individuals and populations. Of the various types of anthropometric measurement, Body

Mass Index (BMI) is a common health indicator and is calculated by dividing a person's weight by the square of their height. It is most accurate for determining severe malnutrition in adults age 18 and over. According to the World Health Organisation¹, individuals with a BMI of less than 16 are considered at "high risk of mortality from starvation," while a population with more than 40% of its adults with a BMI of less than 18.5 may be termed "at critical risk for mortality from starvation" or a "starving community."

TABLE 2: BODY MASS INDEX (BMI)

Garden Status	No. Adults surveyed	Average BMI	No. adults with BMI <18.5	Percent <18.5	No. adults with BMI <16
OPEN #1	60	18.1	24	40.0	1
OPEN #2	47	19.5	19	40.4	2
SICK #1	56	18.4	32	57.1	7
SICK #2	49	18.9	20	40.8	4
CLOSED #1	56	19.5	19	33.9	1
CLOSED #2	63	19.8	22	34.9	2
TOTALS:	331	19.0	136	41.2	17

Significant findings in Table 2 are various. First is that, taken as a whole, the entire population of 331 adults surveyed can be labeled as a "starving community" or "at critical risk for mortality from starvation" (because the percent of individuals with BMI less than 18.5 was above 40%). Secondly, four out of the six gardens surveyed can be labeled as "starving communities" or "at critical risk for mortality from starvation" by WHO criteria, including both open and both sick gardens. Surprisingly the two closed gardens averaged only 34.4% of their populations with BMI under 18.5 and were the only two below official starvation levels. Meanwhile, Sick Garden #1 showed the alarming rate of 57.1% of its population with a BMI less than 18.5, placing it at "critical risk for mortality from starvation," including seven individuals (12.5%) "at high risk of mortality from starvation." Sick Garden #2 also showed a high rate (8.2%) of adults "at high risk of mortality from starvation." Of the total number of adults surveyed in all six gardens, 5.1% fell into this category.

B. Diet

1. Energy Consumption

Malnutrition is described by the World Health Organization as the "inadequate intake of protein, energy, and micronutrients and by frequent infections or disease." In addition to defining malnutrition, energy (caloric) intake is also used as a poverty indicator in India,

with households consuming less than 2400 calories per day per person considered to be Below Poverty Line (BPL).

The survey only allowed for a one-day snapshot of each family's energy consumption, but, as their diet rarely varies from day to day, the daily menus recorded can be considered to be fully representative of their daily diet. As most families surveyed survive on a day-by-day basis, some days are better than others (payday, market days, lean days), but it was determined that these variations should cancel each other out. Each family was asked to recount their diet during the entire previous day; the quantities of each food item were recorded (in kilograms). Caloric intake was later calculated from these numbers, the total of which was divided by the number of family members (children under 13 years were counted as .5, since they assumedly consume less than an adult, and infants under 1 year were not included in the calculations).

TABLE 3: CALORIE CONSUMPTION AND BPL

Garden Status	No. families surveyed	Average per person daily calories	No. families <2400 cal. (BPL)	Percent surveyed population BPL	No. families <850 (starvation level)
OPEN #1	20	2838	5	25.0	0
OPEN #2	20	2511	7	35.0	0
SICK #1	20	2450	12	60.0	2
SICK #2	20	3492	4	20.0	0
CLOSED #1	20	2609	9	45.0	0
CLOSED #2	20	2621	8	40.0	0
TOTALS:	120	2753.5	45	37.5	2

It is unsurprising that closed gardens, where 42.5% of the population classified as BPL, fared worst, followed by 40% in sick gardens and 30% in open gardens. All six gardens together, averaged of 37% BPL, which is higher than the national average. Only two families were found below the 850 calorie mark (starvation levels) on the same sick garden with the alarmingly low BMI numbers. This number would have been much higher in 2003, before rations and temporary work became available in many then-closed gardens.

2. How Often Families Eat and Hungry Periods

Though nearly all families reported eating three meals a day during the time of survey (114 out of 120), 45 families, or 38% reported having gone at least one full day without access to food during the last year. This occurred on all six gardens (9 families on open gardens, 17 on sick gardens, and 19 on closed gardens). Out of the total 45 families who

had been forced to fast, 17 said they had gone 3 or more days without food, and 17 could not recall how many days they'd gone without food.

When workers on sick and open gardens were asked to describe how their diet was different during the lean season (usually the winter period when wages and rations were delayed or absent; this question does not apply to closed gardens, for which all year round is a "lean season"), most families could not recall specifics, but a significant number (55% on open gardens and 35% on sick gardens) reported taking less quantity of the same diet. Additionally, of the 120 families, 79 (or 67%) offered some story about how they managed to survive during the lean season. These responses were very common in the question regarding whether or not they'd gone a full day without eating in the past year, during which a large portion of negative responses were actually "No, but..." answers. Survival strategies including the following: "gathered food from the jungle," "sold belongings," "borrowed money or food credit," and "found temporary outside employment (crushing rocks, selling firewood, or other)."

Ambiguous responses involving one or more of the above replies were common. On one open garden, the family replied that, during the lean season, "Sometimes we are eating, sometimes not; sometimes we are only eating once a day; sometimes we are eating leaves and rice, sometimes only tea." One sick garden family, who had sold their utensils and family cow, said, "Now we have nothing to sell, only our labor." Outside work is not that easy to find, however, with the most common form, stone crushing in the dry river beds, earning 20 to 40 rupees a day.

3. Drinking Water

Roughly half the families surveyed (59) received their drinking water from a labor line tube well and the other half (61) from supply water; a number of respondents on closed gardens reported irregular water supply, often at long distances from home (60% of those surveyed on one closed garden said they walked from 2 to 6 kilometers round trip, and 65% on the other closed garden had to walk between 1 and 1.5 kilometers, while 100% of open and sick garden respondents traveled one kilometer or less, sometimes no farther than their yard). 109 respondents said their water supply was "healthy and safe," 10 said it was not, and one didn't know. Surprisingly, all 10 negative responses were split evenly between open and closed gardens, while all 40 families on closed gardens responded positively. Still, when there is no water, said some families, they are forced to drink from the river, which caused illness, or to travel to a neighboring open garden's tube well.

C. Illness Past and Present

To gain an overview of the survey population's health status, and to determine if individuals may have problems absorbing the nutrients they eat, families were asked how many members were (1) currently suffering from diarrhea or vomiting, (2) have suffered from diarrhea or vomiting in the past year, and (3) were otherwise ill or disabled at the time of survey. 34 cases said they are currently suffering from diarrhea or vomiting (8 in open gardens, 9 in sick gardens, 17 in closed gardens), and 197 cases of diarrhea or

vomiting during the past year: 38 (or 21%) on open gardens, 74 (or 36%) on sick gardens, and 85 (or 39%) on closed gardens. These numbers show raised levels of diarrhea and vomiting on sick and closed gardens, conditions which could reduce an individual's ability to absorb food and nutrients, thus beginning the downward spiral that eventually leads to starvation-related illness and death.

For the third question, 65 "currently ill/disabled" family members were reported to the survey team, evenly spread among the garden types (21 on open gardens, 19 on sick gardens, 25 on closed gardens). The team did not attempt to diagnose or treat these individuals. They did, however, try to find out what kind of treatment was available and where families sought such treatment. Garden hospitals were sometimes sought on sick and open gardens, but families with any means preferred the Government Hospital in Birpara, even though this hospital regularly referred patients on to farther, more expensive hospitals without any treatment. However, the Birpara Hospital was not an option for most families on closed gardens who could not afford transportation to Birpara, let alone medications. In addition, it was found that where government programs existed, such as the Mobile Medical Van, people on the gardens either did not know of its presence and/or schedule, or had no confidence in the van's untrained staff to help their illnesses, preferring to seek out "medical shops" or local cures on the labor lines.

D. Deaths in the Last Three Years (since first closure events)

The total number of deaths were as follows: 38 families reported a total of 46 deaths in the last three years: 11 on open gardens, 19 on sick gardens, and 16 on closed gardens. Of these, 18 were children under 12 years old, and 28 were adults. Determining that death was caused by starvation or malnutrition, as opposed to natural causes, is a difficult task. What is "natural" becomes unclear as undernourishment works its downward spiral on the health of a human being; immunity levels plummet, leaving the body vulnerable to all kinds of otherwise survivable infections, such as measles or malaria. For each of the 46 deaths encountered during the survey, families were asked basic questions about the deceased's symptoms, treatment, and events leading up the death. Rather than ascertain the exact number of "starvation deaths" (a task beyond the scope of this survey), the research team recorded possible cases of malnutrition-related deaths on each garden, a few of which are presented below as case studies.

Case Study No. 1

R. Baraik, 23, received no pre-natal care after becoming pregnant in 2003, not long after her tea garden, closed its doors. But, late in her pregnancy, she fell ill, and made the trip to the Government Hospital in Birpara. She returned home with a diagnosis of tuberculosis. Soon after, with the help of the three elderly midwives from her labor line, R. gave birth to a small, extremely weak baby boy who remained listless, barely able to feed. R. died a few weeks after giving birth, followed three months later by her son.

The Baraik family's struggles continue, two years after R. and her baby's deaths. Their garden remains closed. The household of six adults and three children usually

manages to eat three times day (roti, rice, potato, and tea), but say they have gone completely without food more than three times during the last year.

Help from the government is dismal, at best. The two Baraik school-age children (Sidhanto, 7, and Sidhan, 4) receive midday meals two or three times per week. It is not enough food, they say, only a spoonful of hodge-podge, often with rancid oil. Meanwhile, the government-supplied water pump down the block is not potable, so, like the rest of their neighbors, the Baraiks travel to the neighboring tea garden for drinking water, a round-trip of 5 kilometers.

The mobile medical van, which arrives on Mondays, provides extremely limited treatment and medicine. The Baraiks learned this all too well when Budhain Baraik, 45, began to have irregular urination, a condition that quickly worsened until she could not relieve herself at all. The hospital in Birpara offered no diagnosis and no treatment, only a referral to the University Hospital in Siliguri. This was a trip they could not afford to make, so Baraik was brought back home, where she lays hidden in the house, paralyzed from the waist down and in extreme pain, and most likely, waiting to die.

Case Study No. 2

On one open garden, both Charoa B., 65, and Charotoa B., 85 (from different households) suffered from tuberculosis for one year before being admitted to Birpara Hospital; both were given medications and sent back to their homes where they died one month later. In the hospital of this same open garden, a 12-year-old girl named Chandni B. lay for eight days, suffering from “fever and anemia,” before she was finally referred by the doctor to Birpara Hospital, where she died soon after.

Case Study No. 3

Surajmoni M., about 35 years old (she wasn't sure of her age), is an unemployed plucker on a closed garden. She had a difficult time recounting the recent death of her husband. Not because she was overcome by grief, but because she simply did not know much about it. “*Roge*” was her answer as to how he had died, one that the survey team had heard several times during that day. “Disease.” Surajmoni shifted her crying two-year-old, Jibir, from one hip to the other as she waited for the next question. Which disease? Diarrhea, she answered. He suffered for four weeks and refused to take the medicine she had obtained from the compounder. She did not know why he refused it. Jibir's cries increased, so she draped a dirty dupatta over his head and gave him a breast.

Case Study No. 4

Sunita M. was three years old when she died in 2003, soon after closure on one of the two currently sick gardens that was surveyed. She was stricken with “disease,” said her mother, Gita. “Then her body swelled, then she died.” The family struggled on, often collecting ferns and other items from the nearby jungle. Their tribe does not hunt, she said, so they did not search for animals to eat. Less than one year after

Sunita's death, Gita's youngest son Akosh, seven months old, came down with a case of diarrhea that would not go away. She fed him both breast milk and cow milk, but he continued to suffer. There was "nobody in the garden hospital," she said, and they had no money to travel to Birpara or buy medicine. Two months after he first became sick, Akosh also died.

The garden is open now, and Gita works eight hours a day as a plucker. Her husband is unemployed and her two school age children, Tulshi and Angeli, both receive mid-day meals at school, five days a week. She has a six-month-old boy, Rabi, but did not receive any ICDS rations during her pregnancy, when the garden was still closed. Like most recently delivered or pregnant women surveyed, she received no pre-natal care; only "tablets and injections" one time.

Out of twenty families surveyed on the same sick garden, Akosh and Sunita were among six reported deaths of infants and children under four years of age. Sibram M. was one year old when he died of diarrhea soon after closure, suffering for one month because there was no medicine in the garden hospital, no mobile medical van, and no money to go anywhere else. Anisa M. died of vomiting and diarrhea, at the age of two; she was taken to Birpara hospital but by then it was too late. The compounder could do nothing for Baby N., who became "sick and wouldn't stop crying" and died 15 days after his birth. Baby M. developed a "blood cough at one month, and passed away the next day".

Case Study No. 5

Sankar K. is 40 years old; his job on the recently reopened garden is to bring water out to the workers in the field. In his household of 10 there is one other wage earner, 38-year-old Mani, who is a plucker. The family lost one member during the three-year closure period, Sankar's two-year-old granddaughter, Pumam. "At that time," Sankar said, "the family did not have much food but we were managing; we were eating very little." Pumam, he said, "had diarrhea and vomiting for one day and then died".

E. Mother-Baby and Pregnancy

Results from this line of questioning were inconclusive as to the nutritional status of tea garden families, and are most likely consistent with other poor populations throughout India. That is, many mothers sacrifice their intake of food for their family's sake. 41% of non-pregnant mothers and 14% of pregnant or breastfeeding mothers said they took "less food than the rest of their families." Pre-natal care among the 43 pregnant and breastfeeding women interviewed was virtually non-existent. Only 7 said they had visited a private doctor during their pregnancy, though they rarely sought a follow-up visit and only received some pills and immunizations. In fact, 32 women (about 75%) said they had received "tablets and injections" from either a doctor, compounder, or mobile medical van; sometimes only once, sometimes up to three times. Most had no idea what they were given; the survey team suspects they were iron tablets, vitamins, and polio/tetanus injections. 24 out of the 28 recently delivered mothers gave birth in their homes with local midwives (or "old ladies" as they were referred to) present.

On open and sick gardens, various cases were reported involving inconsistent or entirely absent benefits regarding pregnant and breastfeeding women. There were reports of decreased wages, inconsistent and occasionally no leave time, no break or breastfeeding time permitted, and no free medicine given. On three out of the four open gardens surveyed, both positive and negative replies were given regarding these benefits. On only one open garden was a proper crèche provided for childcare, while the other three only gave ripped and dirty plastic tarps, which were inadequate against the monsoon rains.

F. Government Relief Programs (ICDS and MDMS)

Of 53 women surveyed who should have been eligible for Integrated Child Development Scheme (ICDS), only 18 reported receiving rations, out of which only 5 said the “quantity was sufficient.” Additionally, 20 women said ICDS program was not available, 9 said they “didn’t know about it” and 5 said it was only offered sometimes. Sometimes rations given were mouldy and rancid. Similarly inconsistent responses were given by children enrolled in Midday Meal Scheme (MDMS) school programs, which were offered on both sick gardens but only irregularly on closed gardens, where they are needed most. Out of 38 recipients of MDMS meals, 16 said they were not given “sufficient quantity” to satisfy their hunger.

IV. CONCLUSIONS

Malnutrition exists on all six gardens surveyed. Even workers on open gardens endure lean periods due to decreased or delayed wage payments and food rations, as well as inconsistently provided benefits that they are due by law. Based on World Health Organization criteria for Body Mass Index, all four open gardens surveyed can be labeled as “starving communities” or “at critical risk for mortality from starvation.” Based on daily caloric intake, 42.5% of the closed garden populations classified as Below Poverty Line (BPL), followed by 40% BPL in sick gardens and 30% BPL in open gardens. All six gardens together, averaged 37% BPL, which is higher than the national average.

It is encouraging that pregnant and breastfeeding mothers appear to have some knowledge of the importance of taking additional nutrition, but in general, more pre- and post-natal care and education is needed. Few of the garden hospitals had delivery facilities, making the prospect of complications during home delivery extremely dangerous. If local doctors or hospitals (or mobile medical vans) are to give meds and immunization to pregnant women, they should do so on a more consistent basis, and should educate their patients, at the very least, about what they are administering and why.

Legally mandated worker benefits (especially for pregnant and breastfeeding women) and government relief programs (ICDS and MDMS) are irregular, inconsistent, and in some cases, inadequate or entirely absent. Garden managers and government aid suppliers need to (1) improve the quality and efficiency of their programs and (2) educate the workers as to the existence of said programs. This latter point is essential and urgent.

Many workers have no idea as to the existence of relief or ration programs and, when they do, have no knowledge as to procedures. The same is often true regarding workers' knowledge of their rights under existing labour laws.

¹ Criteria from WHO expert committee report on Anthropometry, WHO TRS 854, 1995.