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AMARTYA SEN, FAD AND THE 1974 FAMINE IN BANGLADESH: A CLOSER LOOK

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ABSTRACT

Bangladesh, a traditionally food-deficit country, suffered a gruesome famine in 1974. It is popularly believed that this famine was instigated by substantial decline in food supply resulting from a combination of factors including floods, lower import and disruption in the flow of food aid. Amartya Sen however has taken an exception of this general impression. He argues 'food availability decline' cannot be the cause of this famine, because, compared to previous years,levels of rice production and foodgrain availabilitywere higher in 1974. This paper cross-examines Sen's statistical information and concludes that hisclaim is both analytically and empirically weakfor at least three reasons: First, the quality of statistics used in the study is questionable. At independence, Bangladesh had no centralised statistical bureau responsible for collecting and compiling data. Second, data generated through sample surveys and experiments were basically guesstimates. Additionally, the year of independence is the study's base year when little official activities could be performed. Finally, the correspondence between the times of starvation and rice production is weak, because data are annual/monthly.

Key words: Bangladesh, Famine 1974, Amartya Sen, FAD, Entitlement approach.

I. INTRODUCTION

After a 9-month bloody war of liberation, which, by popular estimate, claimed about three million lives, Bangladesh, former East Pakistan, emerged as an independent nation in the world map in December 1971. It was traditionally a food-deficit area, a critical problem that was further aggravated after independence by a variety of factors including damaged physical and economic infrastructures, crop damage caused by consecutive flooding, dwindling foreign exchange reserves affecting the country's ability to import foodgrains and finally disrupted flow of food aids. In 1974, the food crisis turned out so serious that government had to declare a state of famine in the country.

Given the circumstances which led to the development of this famine condition, it is popularly believed that this inhuman episode was instigated by the 'sharp and sudden decline in food supply'. Amartya Sen,strongly disagrees with this view. In his exact words, "The food availability approach offers very little in the way of explanation of the Bangladesh famine of 1974. The total output, as well as availability figures for Bangladesh as a whole, point precisely in the opposite direction, as do the inter-district figures of production as well as availability. Whatever the Bangladesh famine of 1974 might have been, it wasn't a FAD famine (Sen 1981b, 141)."

Sen has made similar observations about two other gruesome famines –the Bengal famine in 1943 and the Ethiopian fame during 1972-74. His primary objective in these studies is to provide empirical support to his theory that famines are caused by *entitlement failures* (EA).

They are not caused by 'sharp and sudden decline in food availability' as is traditionally believed – the idea is popularly known by the acronym FAD (food availability decline).

These two ideas, although closely connected conceptually, are distinct and therefore deserve separate analysis. For, the logics articulated to reject FAD are clearly different from those used for promoting EA. The logical weaknesses of one does not necessarily diminish the utility of another. More specifically, the weak arguments Sen has used to discredit the traditional famine view does not inevitably imply that his 'entitlement failure' opinion is also weak. This perception seems to have been largely overlooked in the huge famine literature that has developed over the past four decades(Alamgir et.al. 1977; Alamgir 1980; Allen 1986; Basu 1986; Bowbrick 1986, 1987, 1999; Devereux 1988, 2001; Dowlah 2006; Elahi 2006; Goswami 1990; Kula 1988; Nayak 2000; Osmani 1995; Waal 1990).

As noted above, Sen has studied these gruesome famines in order to offer empirical endorsement to his famine philosophy. To do this, he has contradicted the prevailing popular perceptions - founded on facts and logics - with statistical evidences. Accordingly, the creditability of Sen's argument critically hinges on the quality of data used in the study. In this regard, he has been severely criticised for his analyses of the Bengal and the Ethiopian famines (Bowbrick1986 and 1987Devereux, 1988; Nolan 1993; Rangasami 1985a, 1985b; Fine 1997 andTauger 2006).Such research seems rare in the case of Bangladesh famine. Although a number of studies have been done on the 1974 famine (Dowlah 2006; Husain 1993; Islam2003;Sobhan 1978 and Sohlberg2006), they are mostly concerned with highlighting weaknesses in Sen's argument. This study, therefore, focuses on examining the reliability of data used in Sen's study as well as the quality of inferences that follows from the analysis. Second, it examines exclusively the validity of Sen's argument that there was no food shortage during the famine year. Finally, the lineof reasoning taken in this paper is somewhat different from those used previously. It takes a sort of cross-examination approach usually practised by the defense and prosecution attorneys in the court of law.

Since the details of Sen's analysis are presented in Chapter 9 of his book *Poverty and Famine*, the paper only consults this document in doing this critical cross-examination.The next section provides a structured summary of that chapter so as to summarise key issues and ideas in Sen's assessment.Then Section IIIperforms a critical review of Sen's assessment of the Bangladesh famine;and finally the paper is completed in Section IV with some concluding comments.

II. SEN'S ASSESSMENT OF THE 1974 FAMINE IN BANGLADESH

Amartya Sen's entitlement approach (EA) to famine analysis is probably one of the most widely known academic works in the contemporary history of economics. This idea crystallised in Sen's mind over quite a long period of time. By his own testimony, the inspiration for studying famine came from his boyhood memories about the ignoble Bengal Famine of 1943, when he was about ten years old (Rubin, 2016). But the official history of the approach begins with his 1976 publication in the popular Indian magazine *Economic and Political Weekly*(Sen 1976). His second article on the topic, "Starvation and Exchange

Entitlements: A General Approach and its application to the Great Bengal Famine", appeared in the *Cambridge Journal of Economics*(Sen 1977). After this, he published two more articles on the subject in two very distinguished journals - *World Development*(Sen 1980) and *Quarterly Journal of Economics*(Sen 1981a). All his thoughts articulated in these articles were compiled and elaborated in a monograph published by the United Nations University in Helsinki, Finland. This monograph was later published by the Clarendon Press, which bears the title *Poverty and Famines: An Essay on Entitlement and Deprivation* (Sen1981b). Besides his own major publications, Sen also replied to his critics, and co-edited and contributed in a book (Dreze and Sen 1989; Sen 1986 and 1987).

As noted above, Chapter 9 of the book analysesthe 1974 Bangladesh famine. It is divided into six sections. Section 9.1 titled 'Floods and Famine' describes the nature of floods and their detrimental effects on crop production, while Section 9.2, 'Food Imports and Government Stocks', describes the state of public food stock and the problems associated with importing foods, particularly in the context of crop damage due to floods. Sen assesses the conventional FAD notion in Section 9.3 titled 'Food Availability Decline?' The nature of famine victims and intensity of their destitution are examined in Section 9.4 titled 'Occupational Distribution and Intensity of Destitution'. In Section 9.5, 'Exchange Entitlement of Labour Power', Sen applies his entitlement approach to explain how famine was caused in Bangladesh. Finally, he sums up his thoughts and inferences in the concluding Section 9.6, titled 'A Question of Focus'.

Discussions in the following paragraphs concern only sections 9.1 to 9.3, because other sections are not relevant for this paper. It may be noted that Sen presents a summary of his assessment of the Bangladesh famine, along with two other case studies, in Sen (1981a).

Floods and Famine

Sen begins his description of the floods that ravaged Bangladesh in 1974 with the following long quotation from Etienne (1977, 113-4):

> The floods of 1974 caused severe damage in the Northern districts. In normal years, the Brahmaputra encroaches on its Western bank by 30 - 60 m during peak floods. In 1974, over a distance of 100 km, it flooded land on a strip 300 m wide in areas having a density of 800 per sq. km. 24,000 people suffered heavy losses. Moreover, alluvial deposits, while fertile in some areas, have such a high sand content in others that they are sterile. ... Severe floods occurred at the end of June, taking away part of the aus [rice crop harvested in July-August]. A fortnight later the Brahmaputra again crossed the danger level just at the time of aus harvesting. After another fortnight the level of river rose again and seedlings of aman [rice crop transplanted in July-September and harvested in November-January] in their nurseries were in danger. Then, by the middle of August, floods reached their maximum for the year, affecting recently transplanted aman. It was not the end. At the beginning of September, the Brahmaputra again

> crossed the danger line, hitting once more what was left of paddy which has been transplanted after the previous floods.

Floods in 1974, according to Etienne, were mainly caused by the river Brahmaputra in five stokes, which inflicted serious damage to aus and transplanted aman paddy. The effect of production loss got reflected in the rice market though abrupt increase in its price. The situation went so worse that the government of Bangladesh officially declared famine in late September(Sen, 1981b). Some langarkhanas (relief centres), providing modest amounts of free cooked food to the destitute, were opened early in September under private initiatives, and government-sponsored langarkhanas went into full operation in early October. At some point, nearly six thousand langarkhanas were providing cooked food relief to 4.35 million people—more than 6 per cent of the total population of the country. By November, rice prices were beginning to come down, and the need for relief seemed less intense. By the end of the month the langarkhanas were closed down.

The extent of crop damage caused by the floods varied from one district to another on which Sen does not provide any data. Instead, he infers the degree of famine severity in different districts from the number of individuals fed in langarkhanas. Based on this information, the most severely affected districts were Rangpur, Mymensingh, Dinajpur, Sylhet, and Barisal. Table 1 shows the number as well as percentage of people fed per day by district. During the operation of langarkhanas, at some points, individuals served with daily food constituted 17%, 12%, 9%, 8% and 7% of population of the districts mentioned above in chronological order.

Table 1. Number Obtaining Food Relief in Langarkhanas, Bangladesh Famine, 1974

District	Persons fed per day (000')	Proportion of District Population (%)
Rangpur	936	17.2
Mymensingh	899	11.9
Dinajpur	221	8.6
Sylhet	363	7.6
Barisal	281	7.2
Khulna	246	6.9
Bogra	123	5.5
Noakhali	178	5.5
Patuakhali	66	4.4
Jessore	129	3.9
Faridpur	148	3.7
Comilla	205	3.5
Rajshahi	147	3.5
Kushtia	65	3.5
Tangail	71	3.4
Pabna	58	2.1
Dacca	156	2.1
Chittagong	55	1.3
Chittagong Hill Tracks	0	0

Source: Table 9.2 in Sen (1981). Figures have been rounded.

Besides the crop damage, rice prices also rocketed during and immediately after the floods. Table 2 shows monthly indices of course rice prices in three most flood-affected districts – Mymensingh, Rangpur and Sylhet. Sen used July as the base month, perhaps because floods first severely hit Bangladesh during latter half of June. Prices increased till October and then began to decline in the three most severely affected districts. This trend also resonated throughout the country.

Table 2. Indices of Retail Prices of Coarse Rice during the Last Half of 1974

Month	Bangladesh	Mymensingh	Rangpur	Sylhet
July	100	100	100	100
August	121	130	116	129
September	150	169	184	160
October	178	202	183	204
November	151	162	113	167
December	133	132	85	155

Source: Adapted from Table 9.1 in Sen (1981).

Food Imports and Government Stocks

Bangladesh was a food-deficit country. Naturally, she needed to import foodgrains throughout the year. Table 3, which shows the import of foodgrains during 1973 and 1974, clearly reveals that the level of foodgrains imported in 1974 was much lower than the previous year. Sen vividly describes the situation, "By 1974 Bangladesh was already chronically dependent on import of food from abroad, and despite the famine conditions the government succeeded in importing less foodgrains in 1974 than in 1973 (see Table 9.3). In fact, in the crucial months of September and October the imports fell to a trickle, and the amount of foodgrains imported during these two months, rather than being larger, was less than one-fifth of the imports in those months in the preceding year. In constraining the operations of the Bangladesh government, the shortage of food stock clearly did play an important negative part (Sen 1981b, 135)."

Government's stock of foodgrains consists of three main sources- local procurement, commercial import and food aid. As we know already, the local procurement during the famine year was curtailed by significant crop loss. Table 3 shows that commercial import was lower in 1974. Most importantly, as Sen noted above, commercial imports of foodgrain during September and October were merely 11% and 26% of those months in the previous year. Then, Bangladesh was heavily dependent on foreign food aid, particularly from the US. In 1974, the US government held back its food aid, given under PL-480,on the pretext that Bangladesh started trade relations with Cuba, a blacklisted country. At that time, Bangladesh had a contract with Cuba to export jute – the most important item in the country's export list. The seriousness of withholding US food aid on the 1974 famine is vividly described in Sobhan (1979). The combination of two factors resulted in lesser inflow of foodgrains in 1974 from its previous level. Total quantities of foodgrains imported in 1973 were 2,340 thousand

metric tons, while the same figure in 1974 was 1,693, meaning the 1974 import was only 72% of the 1973 import (Alamgir 1977).

Table 3. Foodgrains Import in Bangladesh (000' tons): 1973 and 1974

Month	1973	1974
January	228	38
February	194	90
March	467	99
April	212	147
May	179	224
June	126	135
July	83	291
August	159	225
September	263	29
October	287	76
November	59	190
December	83	149
Total	2340	1693

Source: Table 9.3 in Sen (1981). Figures have been rounded

Food Availability Decline?

After analysing data on production, supply and demand of foodgrains in the country, Sen moves on to evaluate the authenticity of widespread understanding that the 1974 famine was caused by natural as well as human-made disasters. To do that, he articulated three research questions: "That food availability served as a constraint in government relief operations is not in dispute. But this would establish nothing about the causation of the famine itself. Was the famine caused by a decline of food availability resulting from the floods? Was there a general shortage of food? Does the FAD explanation hold (Sen 1981b, 136)?"

Like previous case studies (Bengal famine 1943; Ethiopian famines 1972-74; Sahel famine 1968-93), Sen analyses official data on foodgrains production, supply and demand to answer these questions. Three paddy crops – aman, aus and boro - met the demand for staple food of the Bangladeshi people. During the 1970's, the relative importance of these rice crops in total domestic production was as follows: aus 25%, aman 56% and boro 19%. The planting and harvesting timings of these crops were the following: aus - sown during March and April, and harvested during July-August; aman – sown during March and April along with Aus and harvested during November-January; local boro - transplanted during November and December, and harvested April-May; and high yielding boro - transplanted during December to early February, and harvested May-June (Shelley et.al. 2016; Sen 1981b). These planting and harvesting timings indicate that the aus and aman paddies were more seriously affected by the floods compared to the boro crops.

Sen examines total rice production data for the period 1971-75 and constructs an index using 1971 as the base year (Table 4). He then calculates per capita rice output and constructs an index in the similar way. The total output index shows that rice production in 1974 was 13%

higher than that of 1971, while it was 5% higher on per capita basis. If we use the 1972 data, then the respective figures would be 21% and 16%. Yet, there was no famine in either year.

Table 4. Rice Production in Bangladesh 1971-5

Year	Rice Production (million tons)	Index of Rice Production	Per Capita Rice Production (ton)	Index of Per Capita Rice Output
1971	10.45	100	0.133	100
1972	9.71	93	0.120	90
1973	10.46	100	0.126	95
1974	11.78	113	0.139	105
1975	11.48	110	0.132	99

Source: Table 9.4 in Sen (1981b).

The next analysis concerns the total availability of foodgrains in the country. This data series was created by adding wheat output and imported foodgrains with rice production. Table 5 clearly shows that both total and per capita food availability were the highest in 1974 – the famine year.

Table 5. Foodgrains Availability in Bangladesh 1971-5

Year	Total Availability (million tons)	Population (millions)	Per Capita Availability (oz./day)	Index of Per Capita Availability
1971	10.74	70.68	14.9	100
1972	11.27	72.54	15.3	103
1973	11.57	74.44	15.3	103
1974	12.36	76.40	15.9	107
1975	12.48	78.41	14.9	100

Source: Table 9.5 in Sen (1981b).

However,Sen says, food shortage could be a local or regional phenomenon, which does not show up in aggregate analysis. ‘Was there an exceptional decline in the districts most affected by the famine?’ To extinguish this doubt, Sen analyses district-wise rice production as well as per capita availability of foodgrains data for the years 1973 and 1974 (Tables 6 and 7). Table 6 shows that rice production increased in all of the 19 districts, in some cases significantly, except in Barisal and Patuakhali. In these two districts, production of rice decreased respectively by 10% and 33%. However, the point needs to be underlined here that rice production in Mymensingh, Rangpur and Sylhet - three most severely famine-affected districts - increased by 22%, 17% and 10% respectively.

Table 6. Production of Rice in Bangladesh by Districts: 1973 and 1974 (000' tons)

District	1974	1973	Change from 1973 to 1974 (%)
Khulna	462	325	+42
Chittagong Hill Tracks	93	67	+39
Dinajpur	666	504	+32
Bogra	478	380	+26
Jessore	531	426	+25
Kushtia	221	180	+23
Mymensingh	1065	871	+22
Tangail	322	264	+22
Faridpur	484	403	+20
Rangpur	1122	958	+17
Chittagong	725	644	+13
Pabna	282	251	+12
Sylhet	1068	968	+10
Dacca	675	625	+8
Noakhali	538	505	+7
Rajshahi	679	638	+6
Comilla	836	805	+4
Barisal	600	664	-10
Patuakhali	229	342	-33

Source: Table 9.6 in Sen (1981b). Figures have been rounded.

The per capita availability figures (Table 7) are somewhat different, meaning the messages one gets from Table 6 are not exactly same provided by Table 7. However, two interesting points may be noted about this table. First, the three severely famine-affected districts enjoyed comfortable increases in per capita food availability: 3 per cent in Sylhet, 10 per cent in Rangpur, and 11 per cent in Mymensingh. Second, the three top-ranked districts in terms of low of per capita food availability (Patuakhali, Barisal, and Comilla), only accounted for about 13 per cent of the langarkhanas inmates.

Table 7. Per Capita Availability of Foodgrains in Bangladesh Districts, 1973 and 1974 (oz. /day)

District	1974	1973	Change from 1973 to 1974 (%)
Dinajpur	25	21	+23
Mymensingh	23	21	+11
Sylhet	22	21	+3
Bogra	21	19	+8
Rangpur	20	18	+10
Chittagong	20	18	+7
Noakhali	17	18	-6
Jessore	16	15	+12
Khulna	16	14	+17
Barisal	16	19	+14
Rajshahi	16	17	+1
Patuakhali	16	24	+35

Tangail	15	15	+4
Comilla	15	16	-8
Chittagong Hill Tracks	14	15	-3
Dacca	14	15	-5
Faridpur	14	12	+13
Kushtia	13	12	+7
Pabna	11	10	+4

Source: Table 9.7 in Sen (1981b). Figures have been rounded.

Based on the above analysis, Sen concluded, as already quoted, “The food availability approach offers very little in the way of explanation of the Bangladesh famine of 1974. The total output, as well as availability figures for Bangladesh as a whole, point precisely in the opposite direction, as do the inter-district figures of production as well as availability. Whatever the Bangladesh famine of 1974 might have been, it wasn't a FAD famine (Sen 1981b p.141).”

III. Sen’s analysis of the Bangladesh famine: a cross-examination of evidences

This debate about the causation of famine, as already noted, is between popular perception and empirical observation. The popular perception is usually founded on facts/experience and logic. Empirical observation or inference, on the other hand, is derived from analysing statistics collected through experiments, surveys and censuses. The relationship between the two kinds of belief is very close,as they together help establish intellectual truth or knowledge. Normally, researchers apply both methods to discover the truth. But sometimes, they question one another to ascertain the truth. However, when empirical observations are used to challenge the authenticity of popular perception, the reliability of data becomes the critical factor. Accordingly, rice production and foodgrain availability data Sen used in his study are cross-examined here with the help of Tables 8 and 9. These tables have been constructed from data supplied in Sen’s book.

Table 8 shows annual rice production and foodgrain availability at the national level. The annual foodgrain availability at national level is supposed to be the sum of three quantities (i) domestic rice production, (ii)commercial import of foodgrain (rice and wheat) by both public and private agencies and (iii) food aids received by the government from friendly foreign countries. Accordingly, the difference between annual foodgrain availability and annual domestic rice production is supposed to show the flow of foodgrains into the country in the form of commercial import and foreign food aid. As noted above, all the three sources of food availability were negatively affected during the famine year: floods damaged and destroyed paddy on the fields; a combination of lower foreign exchange reserves and high prices of foodgrains and oil reduced the level of commercial import and finally, flow of food aid was seriously interrupted due to political reasons. It is thus surprising to see that Table 8 has little reflection of these facts on domestic rice production and/or foodgrain availability data. Sen used 1971 as the base year. Both rice production and foodgrain availability data show almost consistent increases since the base year. More importantly, 1974 was the peak year for domestic rice production and second peak year in case of foodgrain availability. Domestic

rice production and total foodgrain availability in 1974 were respectively 13% and 15% higher compared to 1971. Sen uses this information as the vindication of his view that FAD theory does not explain the true reason of the Bangladesh famine.

Table 8. Rice Production and Foodgrain Availability in Bangladesh during 1971-75

Year	Rice Production (million tons)	Total foodgrain Availability (million tons)	Difference (million tons)
1971	10.45 (100)	10.74 (100)	0.29 (100)
1972	9.71 (93)	11.27 (105)	1.51 (501)
1973	10.46 (100)	11.57 (108)	1.11 (383)
1974	11.78 (113)	12.36 (115)	0.58 (200)
1975	11.48 (110)	12.48 (116)	1.00 (344)

Source: Compiled from Tables 4 & 5. Figures in the parentheses indicate percentages. The base year is 1971.

The other kind of data Sen uses to support his criticism of FAD theory include changes in rice production and foodgrain availability from 1973 to 1974 at district level. Sen provides this information, as already noted, with a view to dismissing the possibility that the food shortage was a local phenomenon, not a national one. This information along with the level of destitution due to famine are juxtaposed in Table 9. Sen, it may be recalled, used the proportion of district people fed in langarkhanas as a measure of the intensity of famine destitution. Finally, it is important to note the difference between national and regional figures concerning foodgrain availability. At the district level, annual food availability is the sum of three quantities – (i) total amount of rice produced, (ii) net private transfer into the district (transferinto the district from both national and international sources minus transfer out of the district) and (iii) foodgrain disbursed through statutory public rationing system.

Consider the five most severely famine-affected districts – Rangpur, Mymensingh, Dinajpur, Sylhet and Barisal. In Rangpur, 17.2% of the district's population were fed in langarkhanas at some points of time, yet rice production and per capita food availability increased respectively by 17% and 10%. The second worst famine-hit district was Mymensingh, where 11.9% of the district's population were fed in langarkhanas. But Sen's data show that rice production and foodgrain availability in the district increased by 22% and 11% respectively. Dinajpur was the third worst famine-hit district, whose 8.6% population were fed in langarkhanas. Yet, rice production in the district increased by 32% - definitely not an insignificant number - and per capita foodgrain availability increased by 23%.

Table 9. Rice Production, Food Availability and Famine Destitution at District level

District	Proportion of Population fed in Langarkhanas	Change in Rice Production	Change in per capita foodgrain availability
Rangpur	17.2	17	10
Mymensingh	11.9	22	11
Dinajpur	8.6	32	23
Sylhet	7.6	10	3
Barisal	7.2	(-) 10	14
Khulna	6.9	42	17
Bogra	5.5	26	8
Noakhali	5.5	7	(-) 6
Patuakhali	4.4	(-) 33	35
Jessore	3.9	25	12
Faridpur	3.7	20	13
Comilla	3.5	4	(-) 8
Rajshahi	3.5	6	1
Kushtia	3.5	23	7
Tangail	3.4	22	4
Pabna	2.1	12	4
Dacca	2.1	8	(-) 5
Chittagong	1.3	13	7
Chittagong Hill Tracks	0	39	(-) 3

Source: Compiled from Tables 1, 6 & 7. All figures are in percentages. Columns 2 and 3 show percentage changes from 1973 to 1974.

This bizarre statistical information raises some curious questions about the soundness of Sen's analysis. Seeking food in langarkhana is definitely not an honourable thing in Bangladesh. This social value of the Bangladeshi people begs questions about why so many people were begging food inlangarkhanas, when both rice production and food availability increased in the districts. Sen justifies the abundance of food availability in the country by arguing that people could not afford to buy food due to lower wage-rice exchange rates. This answer is unsatisfactory, because most flood victims were agricultural labourers and tenant peasants (Sen 1981b). Agricultural labourers, who basically leave hand-to-mouth, lost their jobs during the flood, while tenant peasants, who are mainly dependent on their harvests, lost their crops to the flood. To these people, the rise in rice prices is of little concern, because they have little money to buy foods.

Even if this weakness is ignored, Sen's answer still does not explain why people will seek food in langarkhanas, when production of rice is more than its normal level. If rice production is normal, then the famine situation cannot develop in rural areas. For, all rural residents normally get enough food to satisfy their natural hunger, either through production and/or selling labour. This inaccuracy in the data assembled by the Bangladesh Institute of Development, which Sen has used in his study, negatively affects the logical value of Sen's inference.

The Bangladesh Bureau of Statistics (2017), the centralized official statistical system in the country may help us understand the nature of data Sen used in his analysis: "After independence in December 1971, Bangladesh owned a weak and disintegrated and disorganized official statistical system. There were many agencies engaged in statistical data generation, dissemination but they were working independently of each other having little co-ordination among them often resulting in duplication, inadequacy. Data generated by them were inadequate and in many areas incomplete and as such, could not provide satisfactory basis for formulation of plans and policies for the new nation … Accordingly in August 1974, the Bangladesh Bureau of Statistics (BBS) was created by the government by merging four relatively larger statistical agencies of the erstwhile provincial and central governments, namely, the Bureau of Statistics, the Bureau of Agriculture Statistics, the Agriculture Census Commission and the Population Census Commission."

This situation, it may be noted, has little improved. Even the country's finance minister was unhappy about the quality of the BBS data, which he ventilated at a national conference of the Bangladesh Statistical Association (Zahid, 2012). He complained about the discrepancies in data supplied by different organs of the BSS and particularly mentioned about the mismatch in data relating to demography, export and FDI flow.

The Bangladesh Bureau of Statistics casts doubts on the quality of data used in Sen's study. The rice production data were most likely collected by the Bureau of Agriculture Statistics; foodgrain import and food aid data by the Bureau of Statistics; and finally, population data were collected by the Population Census Commission. The researchers at the Bangladesh Institute of Development Studies (BIDS), which also conducted massive surveys on the 1974 famine, complied the official data and published them along with the data collected through surveys in Alamgir et.at. (1977).

There are a number of inconsistencies in the data collected by different government agencies. Anyone with good commonsense should be able to detect them. Alamgir apparently overlooked these inconsistencies, because very little could be done about them. Then, it was not perhaps essential in his study to take them seriously. The same however cannot be said about Sen.For, proving his famine proposition is critically dependent on the quality of data. Sen does not seem to be troubled by those inconsistencies, which is clearly demonstrated in Sen (1981a and 1981b).He states the facts that indicate the possibility of reduced food supply and then challenges this possibility by citing figures generated by the public statistical agencies, without raising any question about their accuracy.

First and foremost, Sen used 1971 as the base year for comparison. Since there was no report of food crisis in this year, it was a normal year for all ordinary people of Bangladesh. This is absolutely true, which all Bangladeshis will testify. However, from the political point of view, it was the most disturbed period in the history of Bangladesh. This is the year when people of Bangladesh fought the war of liberation.As a result, government offices could hardly conduct normal activities, meaning the officials responsible for collecting agricultural statistics could not conduct their routine activity. The 1971 rice production data are at best good

guesstimates, which may be consistent with those of the previous years, but are hardly reflective of actual production figures of the year.

Second, the trend in rice production data is quite smooth. The coefficient of variation calculated from the production data is only about 8%, which seems quite small given the fact that the Bangladesh agriculture was affected by natural calamities several times during period. Third, Table 3 shows that imports of foodgrains in Bangladesh in 1973 and 1974 were respectively 3.34 and 1.69 million tons. Import here is supposed to indicate commercial purchase of foodgrains by both private and public agencies. However, Table 8 shows that the combined inflow of foodgrains (commercial purchase plus food aid) during these years were respectively 1.11 and 0.58 million tons. Figures in Table 3 are about three times higher than those in Table 8. These differences would further increase if we subtract quantities of food donated by friendly foreign countries as aid from the food availability figures.

Data in Table 9 show some more interesting points. Annual foodgrain availability in a district, as defined above, is the sum of three quantities – rice production, net transfer and government sale through its rationing system. Table 9 shows that rice production in the famine year decreased only in two districts, Barisal and Patuakhali, meaning it increased in 17 other districts. Foodgrain availability, on the other hand, decreased in four districts – Noakhali, Comilla, Dhaka and Chittagong Hill Tracks. Except the districts where rice production decreased, the increase in foodgrain availability is *lower* than the increase in rice production. For example, in Rangpur, the most severely flood-hit district, rice production increased by 17%, while per capita foodgrain availability increased by 10%. This suggests that there was a net transfer of rice out of the district and the government rationing machinery stopped operating in the district. For, population of the district increased by 2.7% (Sen, 1981, Table 9.5), which therefore cannot explain the 7% difference. Consider the case of Khulna. There rice production increased by an astounding 42%, while foodgrain availability increased by only 17%, which is 2.47 times lower than the increase in rice production. What could possibly happen that rice production in Khulna increased by 42% in a matter of one year? Finally, the rice production in Patuakhali district declined by 33% during the famine year, but the capita foodgrain availability increased by 35%!

One can certainly make more negative observations about the quality of data Sen used in his study.However, the ultimate inference emerging from the cross-examination is pretty clear: The accuracy of data Sen used in his study is ambiguous. And in empirical studies, conclusions are little reliable if the accuracy of data is questionable.

Besides the quality of data in Sen's analysis, there is another point which seems to have received little attention in the famine literature. This point concerns the correspondence between the famine victim and the food production figures. For examples, rice production in Rangpur increased by 17% during the famine year, while 17.2% population of the district sought meals in langarkhanas; in Dinajpur, production increased by 32%, while 8.6% people satisfied their hunger in langarkhanas; and finally, production increased by 42% in Khulna, yet 6.9% population of the district were fed in langarkhanas (Table 9). These figures suggest

that the occurrence of famine and the time of rice production do not coincide. For, if they did, famine situation could not have developed. Naturally, annual rice production data, national or regional, cannot explain the occurrence of famine. This statement may be better understood by closely looking at Sen's definition of FAD theory.

FAD approach, according to Sen, says that famine is caused by a 'sharp decline in food availability' in 'the region in question'. In other words, the FAD theory is founded on two key conceptions – 'sharp decline in food availability' and 'the region in question'. Sen has repeatedly mentioned in his writings on famine but hardly clarified what they really mean. In our context, Sen studied the 1974 famine in Bangladesh. But neither the nation nor any district can be treated as 'the specific region in question', because famine did not take place all over the country or district. Therefore, 'the region in question' must be some place or area more specific and localised. This suggests thatthe production and food availability data in Sen's study do not correspond to the 'idea of region' mentioned in his definition of FAD. The other conception, 'sharp decline in food availability' basically refers to the mode of making livelihood in the region. For, people's access to food can sharply decline only when the occupations they pursue for earning their livelihood are affected so suddenly that they are unable to find alternative job opportunities in the region. Therefore, annual rice production/foodgrain availability figures are not closelyconnected with the occurrence of famine. This statement is vindicated by Sen's own testimony: "Starvation is the characteristic of some people not *having* enough food to eat. It is not the characteristic of there *being* not enough food to eat (Sen 1981b, p.1)."

IV. CONCLUSION AND POLICY IMPLICATIONS

One key element of Amartya Sen's famine philosophy is his denunciation of the orthodox FAD approach. According to this view, famine is caused by a 'sharp decline in the availability of food supply in the region in question'. Sen has rejected this ordinary understanding and argued that 'famines often take place in situations of moderate to good food availability, without any significant decline of food supply per head'. He draws this conclusion from studying four grisly famines occurred during the past century in four countries of Asia and Africa. One of these case studies is the 1974 famine in Bangladesh. Although reliable famine-related death figures are not available, some informed estimates claim that this number was over one million. The popular perception about the factor causing this gruesome famine is the significant decline in food availability due to a combination of factors including the repeated flooding by the mighty river Brahmaputra, lower commercial import of foodgrains and the interruption of food aid. All these happened within the background that Bangladesh was a newly born chronically food-deficit country with war-ravaged physical and economic infrastructures.

Against all these facts and informed opinions, Sen came up with the conclusion that the FAD theory does not explain this tragic human phenomenon. For, "The total output, as well as availability figures for Bangladesh as a whole, point precisely in the opposite direction, as do

the inter-district figures of production as well as availability. Whatever the Bangladesh famine of 1974 might have been, it wasn't a FAD famine."

This paper cross-examines Sen's contested claim and concludes this claim is weak in terms of empirical logic. The sources of data used in the study are highly unreliable:At that time, Bangladesh had no central bureau of statistics. Four public agencies, all of which were inherited from Pakistan, collected statistics. All these led to inconsistency in data analysis and irrational inferences.The Bangladesh Institute of Development Studies, which compiled these data, overlooked those inconsistencies; but Sen seems to have ignored thempurposely. In empirical research, inferences lack logical validity if the quality of data is questionable. This seems to be case with Sen's analysis of Bangladesh famine.

However, this paper examinesonly the empirical aspect of Sen's famine philosophy.But, the theoretical aspect - which asserts that famines at all times and all places occur due to 'entitlement failure' – is intellectually more interesting. This is indeed an innovative idea in the poverty analysis and for that reason Sen was well rewarded by awarding the 1998 Nobel Prize along with his other contributions in economic sciences.

Unfortunately, this award- winning idea had come under serious criticisms soon after it was introduced in the academic world. And these criticisms have remained unsettled because Sen apparently has not succeeded in satisfying those critics. An in-depth research therefore deems important to resolving this decades-old academic controversy. However, in the context of this paper, another study is needed to examine the remaining sections of the concerned chapter of Sen's Book in order to assess his contention that the 1974 famine was caused by 'entitlement failure'. This study will complete the inspection of Sen's contested comment on the 1974 Bangladesh famine and would perhaps make an illuminating contribution to the world-wide debate on Sen's entitlement approach to famine analysis.

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