

**ANALYSIS OF POVERTY STATUS OF FARM HOUSEHOLDS IN INI LOCAL GOVERNMENT AREA OF AKWA IBOM STATE, NIGERIA****\*Damian I. Agom, Ubokudom E. Okon and Daniel N. Archibong**

Department of Agricultural Economics and Extension, Akwa Ibom State University

\*Corresponding author: agomd@yahoo.com

**Abstract**

*The study analyzed poverty status among rural farm households in Ini Local Government Area of Akwa Ibom State. Primary data used for the study were derived from a three-stage sampling survey of 200 randomly selected farming households in 8 farming communities. The data were analyzed using descriptive statistics, Forster-Greer and Thorbecke (FGT) poverty model and Logit model. The results for the socio-economic showed that majority (84.5%) of the household head were male and were aged between 30-40 years with a mean of 39.645 years. About 77.5% of the respondents were married and their mean household size was 7 persons with a mean farming experience of 16.3 years and 48 percent of the household head had no formal education. 95.5% of the respondents had no access to credit facility and were not members of cooperative society. About 96% of the respondents were into crop farming as a primary occupation, and 84% of respondents were non-poor, 15% moderately poor, and 1% were core poor. The poverty incidence, depth and severity were 0.16, 0.08 and 0.05 respectively among the rural farm households. The determinants of poverty include: farm size, gender and monthly income of household's head which were positively related to households' poverty status while household size was inversely related to poverty status. Hence, credit should be made available to farmers. In addition, farmers should be encouraged to join cooperative societies as it could help in input acquisition and enhance their production capacity.*

**Keywords:** Poverty status, farm household, expenditure, food crisis, Covid-19 pandemic.

**Introduction**

Poverty and food insecurity are the most crucial and persistent problems facing humanity. Currently, the world is challenged with the problem of overcoming poverty especially for the poor and vulnerable groups in the society. Poverty can be seen as a roadblock to having access to safe and nutritious food which is needed for meeting the dietary needs of humans. As the scale of human activities expands, the capacity of eco-systems to regenerate the natural resource base becomes an increasing constraint to growth and development. Agriculture which is often the bedrock of development in developing countries has faced serious setback due to climate change and covid-19 pandemic. Before the outbreak of Covid-19, Nigeria had not achieved the sustainable development needed to

strongly reduce poverty (World Bank, 2022). As such, the rising food prices pose fresh threats to poverty reduction. A greater proportion of poor and food insecure people are observed in households engaging in agriculture, who lack access to capital assets necessary to generate income. The impact of Covid-19 increased households' poverty undermined the democratic processes in many developing countries, as well as the institutions that can lead to redistribution of wealth (Pandes and Enevoldsen, 2021). As such, developing countries strives for poverty reduction with multiplicity of challenges, including rapid population growth, increased per capita income and changes in dietary pattern (linked, *inter alia*, to growing urbanization) will bring about continuous increases in demand for food and other agricultural products (Okon, *et al.*,

2017).

According to World Bank (2020), 40 percent of the total population, or almost 83 million people, live below the country's poverty line of 137,430 naira (\$381.75) per year. Also, the unemployment rate of the workforce population stood at 33.3% in Q4 of 2020 and the rate of underemployment is at 22.8% while Nigeria currently ranks as the 41<sup>st</sup> country with the highest unemployment rate (NBS, 2021). Additionally, in the 2021 Global Hunger Index, Nigeria ranks 103 with a score of 28.3 and a level which is termed serious (GHI, 2021).

Despite the fact that agricultural activities are domiciled in the rural settlements, most of the farming households are affected in terms of poverty especially the smallholder farming households, though the rest of the population solely depends on their production (Haddabi *et al.*, 2019). It is therefore important to understand the factors responsible for poverty among the farming households. This study aimed to analyze the poverty status among the smallholder farmers in Nigeria. Specifically, this study analyzed the socio-economic characteristics and the poverty status as well as the factors that influence the poverty status of the respondents in the study area.

## **Research Methodology**

### **The Study area**

The study was carried out in Ini Local Government Area of Akwa Ibom State, Nigeria. The Local Government Area is located approximately between latitudes 5°18<sup>1</sup> to 5°30° North and longitudes 7°37<sup>1</sup> to 7°52<sup>1</sup> East in the Northern boundary of Akwa Ibom State and is bounded by three Local Government Areas of Abia State which includes Ikwuano, Bende and Arochukwu. The area is generally low lying with spot hills scattered within the Local Government Area with the highest point at Obotme (150 m above sea level). The rainfall is heavy and lasts

about 10 months in the year. The land is generally suitable for the cultivation of upland rice, cocoa, cassava and other root crops. The area is drained by the tributaries of Enyong creek, locally known as Inyang Nkante, Inyang Ebo and Igwu Abam. Geologically, the dominant characteristic is sandstones and limestone's east of Nkari, Obotme which stretches to Itu and Enyong creek confluence. The soil is composed of clay stones, sands and gravels. The people of Ini Local Government area are Ibibios. Ibibio, Itu Mbon Uso/Nkari languages are spoken in the LGA. As of 2006, the population was 99,196 in total with 52,644 male and 46,552 female residents (NPC, 2006). The Local Government Area comprises six clans which include; Odoro Ikpe (14 villages), Uquok (24 villages), Ikpe/Ikot (19 villages), Iwerre (7 villages), Nkari (10 villages) and Itu-Mbunuso (9 villages) giving us a total of 83 villages.

### **Sampling Technique and Sample Size**

Multistage sampling technique was used for the purpose of this study. In stage 1, four clans which are Odoro Ikpe, Uquok, Ikpe/Ikot, and Iwere were randomly selected from the existing six clans. Stage 2, two villages were randomly chosen from each of the four clans making a total of eight villages. The selected villages are: Odoro Ikpe (Ikpe Ikot Nkon and Itie Ikpe), Uquok (Ikot Abasi and Aba Itiat), Ikpe/Ikot (Nsit Ikpe and Nna Enin), Iwerre (Obotme and Okpoto). In the last stage, twenty-five farmers were randomly selected from each of the selected villages. This gave a sample size of 200 respondents for this study.

### **Method of Data Collection**

Data were collected using a well-structured questionnaire and complemented by personal interview to ensure consistency and accuracy of data collected. The well-structured questionnaire was administered on 200 farming household heads in the study area. The cross-sectional data were collected, scrutinized and used for data

analysis.

**Method of Data Analysis**  
**Socioeconomic characteristics of the respondents**

The socio-economic characteristics of the respondents were realized using descriptive statistics such as means, percentages and frequency. It is expressed as;

$$X = \frac{\sum fx}{N} \dots\dots\dots(1)$$

Where X = mean,  $\sum fx$  = sum of individual observation and n = sample size

**Poverty status of the respondents**

The study employed the 2/3 of the Mean Per Capita Household Expenditure MPCHHE of ₦135,889.93 as the poverty line which was computed from household expenditures of the respondents in the study area. The poverty line was used as a benchmark to estimate the poverty status of farming households in the study area. Accordingly, farming households whose MPCHHE exceeded ₦135,889.93 were regarded as non-poor while those with less than ₦135,889.93 were regarded as poor. To further disaggregate poor households into moderate and core poor, the study further adopted the poverty line of the 1/3 of MPCHHE of ₦67,944.14 in its classification. In line with this poverty line, farming households with MPCHHE less than ₦67,944.14 were regarded as core poor while those with MPCHHE of more than ₦67,944.14 and less than ₦135,889.93 were regarded as moderate poor.

**Foster, Greer and Thorbecke Model**

Having established the poverty line, the Foster, Greer and Thorbecke (FGT) (1984) model of poverty analysis was adopted.

The formula for FGT is presented as

$$P\alpha = \frac{1}{n} \sum_{i=1}^q \left[ \frac{z-y_i}{z} \right]^\alpha \dots\dots\dots (2)$$

Where;

Z = poverty line for the households

q = number of poor households

n = total number of households in the population

$y_i$  = per capital household income

$\alpha$  = poverty aversion parameter and takes on the values 0,1,2

The quality in the bracket  $\left[ \frac{z-y_i}{z} \right]^\alpha$  is the

proportionate short fall in expenditure or income below the poverty line.

(i) If  $\alpha$  is raised to 0 then the poverty index measured is the head count ratio or incidence of poverty.

When  $\alpha = 0$ , then FGT index is expressed as:

$$P_0 = \frac{1}{n} \sum_{i=1}^q \left[ \frac{z-y_i}{z} \right]^0 = \frac{1}{n} \sum_{i=1}^q \left[ \frac{z-y_i}{z} \right]^0 \dots\dots\dots(3)$$

(ii) If  $\alpha$  is raised to 1 then the poverty index measured is the poverty gap ratio or intensity of poverty. This represents the proportion that the average poor will require to at least get to the poverty line.

When  $\alpha = 1$ , then FGT index is expressed as:

$$P_1 = \frac{1}{n} \sum_{i=1}^q \left[ \frac{z-y_i}{z} \right]^1 = \frac{1}{n} \sum_{i=1}^q \left[ \frac{z-y_i}{z} \right]^1 \dots\dots\dots(4)$$

(iii) If  $\alpha$  is raised to 2 then the poverty index measured is the severity of poverty. The closer the value is to 1 the higher the seriousness of poverty.

When  $\alpha = 2$ , then FGT index is expressed as:

$$P_2 = \frac{1}{n} \sum_{i=1}^q \left[ \frac{z-y_i}{z} \right]^2 = \frac{1}{n} \sum_{i=1}^q \left[ \frac{z-y_i}{z} \right]^2 \dots\dots\dots(5)$$

### Factors influencing Poverty Status in the Study Area

The Binary logic regression was used to estimate the factors influencing poverty status of rural farm households.

The Logit model is implicitly stated as follows;

$$Z_i = \beta X_{ij} + N \dots\dots\dots (6)$$

Where;

$Z_i$  = poverty status (provided as poor=1, non-poor=0)

$X_i$  = vector of explanatory variables

$N$  = stochastic error term

$\beta$  = vector of the parameter estimates

The explicit form of the model is stated as follows;

$$Y = \ln\left(\frac{P_1}{1-P_1}\right) = \beta_0 + \beta_1 X_{1+} + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \beta_9 X_9 + \beta_{10} X_{10} + \beta_{11} X_{11} + \beta_{12} X_{12} + E_i \dots\dots\dots (7)$$

Where;

$X_1$  = Gender of household head (Dummy, 1 = male, female = 0)

$X_2$  = Age of respondents (years)

$X_3$  = Marital status of respondents (married = 1, otherwise = 0)

$X_4$  = Household size (number of persons)

$X_5$  = Farming experience of respondents (years)

$X_6$  = Educational level (years)

$X_7$  = Member of cooperative (1 = yes, 0 = No)

$X_8$  = Farm size (hectares)

$X_9$  = Source of labor (1= family, 0=hired)

$X_{10}$  = Monthly income of farm households

(Naira)

$E_i$  = Error term

### Results and Discussion

Table 1 showed that majority (84.5%) of the respondents were male while 15.5% were female. Also, both male and female were involved in farming but most of the farming operations were undertaken by the males, thus agreeing with the finding of Robert *et al.*, (2013) and Folorunso *et al.* (2018) who reported that majority of the household heads were males and were

responsible for major production decision. The age distribution of the respondents showed that the modal class of 30-40 years accounted for 65% while 31% were within the age range 41-50 years, those that were within the age of 51-60 years and greater than 60 years accounted for 2% and 0.5% respectively. The mean age of the respondent was 39.65 years, an indication that the respondents are in their active and productive age, hence will contribute towards household per capita income to improve their living standard. The result is in line with the findings of Haddabi *et al.*, (2019) and Yusuf *et al.* (2015) who claimed that at the active working age, household heads adopts innovations that positively affect their productivity and income.

The results further showed that majority (77.5%) of the respondents were married, while 2% were single, divorced and widows accounted for 7.5% and 14% respectively. Households where the respondents are married and both the spouses are working are expected to be financially stable than households with single, widowed or divorced respondents. Most rural farmers will prefer to marry in order to have cheap labor for agricultural activities (Kirwan & Maye, 2013). The results showed that about 87% of the respondents have household sizes of 5 - 8 persons, 9% had household sizes ranging within 9 - 10 persons, 2% had less than 5 persons while 2% of household had greater than 10 persons in their household. The mean household size is about 7 persons. Bigger households tend to have more family labor for farming activities even though the dependency ratio will be high. Additionally, larger household size tends to reduce per capita food expenditure and per capita household income, thus increasing their likelihood of being poor. The findings corresponds with that of Okorie *et al.* (2020) and Jeiyol *et al.*, (2013) who asserted that households with members above 5 had greater level of dependency.

Table 1 also showed that the mean farming experience was about 16.29 years. This implies that most of the farmers in the study area were well experienced in food crop production. This is in consonance with the finding by Zubairu and Maurice (2014) who reported that farmers with more years of experience in farming are likely to adopt new innovations easier that would improve their productivity and their level of income. Also, majority (48%) of the respondents did not have any form of education, 27.5% of the respondents had primary education, and 18.5% had secondary education while 3.5% and 2.5% of the respondents had OND and BSC respectively. This could mean that the respondents were not well educated and could limit their level of income generation. Educated farmers adopt agricultural innovations easier, and this could improve their agricultural productivity and increase their income. This finding is in consonant with that of Ademola and Abang (2015) but contrary to the findings of Haddabi *et al.* (2019) and Olayemi (2012). On credit access, 95.5% of the respondents had no access to credit facility, while 4.5% accessed credit facility. Access to credit is an important factor that can influence the likelihood of adoption of new technologies by farmers to augment their income level and reducing poverty. Farm credit plays an intermediate role between adoption of farm technology and increase in farm output vis-à-vis their income level (Jeiyol *et al.*, 2013). This finding corroborates with that of Haddabi *et al.* (2019) who asserted that farmers lack the ability to expand their production activities due to limitation to finance. Table 1 further showed that 95.5% of the respondents were not members of cooperative society while 4.5% were members of cooperative society. This implies that farm household heads in the study area were not fully involved in cooperatives and other social organizations which would have enhanced their

chances of making impact in farming. Membership of cooperative societies could aid easy access to farm inputs (Folorunso *et al.*, 2018). Farming as an occupation reveals that majority (96%) of the respondents had farming as primary occupation while about 4% of them had farming as a secondary occupation. This implies that the respondents were predominantly farmers. Okorie *et al.*, (2020) and Oyekala *et al.*, (2012) had similar finding.

Table 2 shows the percentage distribution of respondents according to the types of farm enterprise practiced. The Table showed that 82% of the respondents were into crop farming, 13.5% were into livestock farming while 4.5% were into mixed farming. This implies that farmers in the study area practice crop farming due to the less capital involvement in practicing crop production. On the basis of mixed farming, the result showed that 22.22% had farm sizes less than 1.0 hectares, 22.22% had farm sizes within the range of 1.0 - 1.5 hectares, 44.44% had farm sizes within the range of 1.6 - 2.0 hectares while 11.11% had farm sizes greater than 2 hectares. The mean farm size for the respondents practicing mixed farming is 1.55 hectares. The finding showed that the respondents are mainly small scale farmers; hence food production is at subsistence level which could lead to diversification of income sources by farmers to be non-poor. This finding corresponds with the finding of Haddabi *et al.* (2019) and Oyebanjo *et al.* (2013) that majority of Nigerian farmers are small scale farmers who cultivate less than 5 hectares. The result reveals that most (38.5%) of the respondents used family farm lands, (33.5%) used inherited farm lands while 22% and 6 % used personal and leased farm land respectively.

All the respondents reportedly had no access to extension services. This implies that the respondent had no knowledge about innovations and new technology. This study supports that of Akpan *et al.* (2013). Also, 54.5% of the

respondents employed family labor while 45.5% of them used hired laborers. Farm households with larger household size uses more of family labor compared to hired labor, due to the fact

that these farm households cultivates small farm sizes, the household members participate in the farm all farm activities in order to reduce cost of farming and increase returns from the farm.

**Table 1: Socio-economic Characteristics of the Respondents**

Variables	Frequency	Percentage	
<b>Gender</b>			
Male	169	84.5	
Female	31	15.5	
<b>Age</b>			
30-40	133	66.5	
41-50	62	31.0	
51-60	4	2.0	
Above 60	1	0.5	mean = 39.65
<b>Marital Status</b>			
Single	2	1.0	
Married	155	77.5	
Widowed	28	14	
Divorced	15	7.5	
<b>Household size</b>			
1-4	4	2	
5-8	174	87	
9-12	22	11	Mean =7
<b>Farming Experience (years)</b>			
1-10	40	20	
11-20	122	61	
21-30	38	19	Mean= 16.29
<b>Educational Level</b>			
No formal Education	96	48	
Primary Education	55	27.5	
Secondary education	37	18.5	
OND	7	3.5	
BSc/HND	5	2.5	
<b>Access to credit</b>			
Yes	9	4.5	
No	191	95.5	
<b>Membership of Cooperatives</b>			
Yes	10	5	
No	190	95	
<b>Farming as occupation</b>			
Secondary occupation	8	4	
Primary occupation	192	96	

Source: Field survey, 2021

**Table 2: Farm Characteristics and Monthly Expenditure of the Respondents**

Variable	Frequency	Percentage
<b>Type of farming enterprise</b>		
Mixed farming	9	4.5
Livestock farming	27	13.5
Crop farming	164	82
<b>Farm area</b>		
<1.00	2	22.22
1.0-150	2	22.22
1.51-2.0	4	44.44
>2.0	1	11.11
<b>mean = 1.55</b>		
<b>Method of land acquisition</b>		
Personal	44	22.0
Family	77	38.5
Leased	12	6
inheritance	67	33.5
<b>Sources of Labor</b>		
Family	109	54.5
Hired	91	45.5
<b>Monthly Expenditure (₦)</b>		
≤50,000	1	0.5
50,000-100,000	74	37
100,001-150,000	96	48
>150,001	29	14.5

Source: Field survey, 2021

### **Analysis of Poverty Status of Farm Households in the study area**

Table 3. Presents the result of the analysis of poverty status and situation of farming households that was computed using the mean per capita household expenditure. The poverty line was computed using 2/3 of MPCHHE which was gotten to be ₦135, 889.93. The first was the 2/3 of MPCHHE ₦135, 889.93 which was adopted to estimate the number of poor and non-poor farmers. The second was the 1/3 of the MPCHHE of ₦67,944.14 which was adopted to analyze the poor respondents with a view to classifying them into moderate and core poor respectively.

### **Relative Poverty Indices of Rural Farm Households in the Study Area**

Table 3 presents the result of the relative poverty incidence that was estimated using the Foster, Greer and Thorbecke (1984) model (FGT). Empirical result of the relative poverty indices revealed a headcount ratio or incidence of poverty index of 0.16, denoting that about 16% of the respondents were poor. The incidence gap ratio or intensity of poverty was 0.0847, implying that the poor individual's income transfer requires about 8.47% to bring them to the poverty line. Also, the severity of poverty was 0.0501, indicating that about 5.01% of the individual suffers severe poverty. In Abia State, Nigeria Obike *et al.*, (2018) reported a poverty incidence of 0.62 and poverty gap of 0.47. Asogwa *et al.*, (2012) also reported a poverty

gap of 0.27 and severity of poverty of 0.15 among farming households in Nigeria.

**Table 3: Analysis of Poverty Status and Situation of Rural Farm Household in the Study Area**

Poverty Status/Situation	Frequency	Percentage (%)
Non Poor	168	84.0
<b>Poor:</b>		
Moderate poor	30	15.0
Core poor	2	1.0
<b>Total Poor</b>	<b>32</b>	<b>16.0</b>
<b>Grand Total (Poor + Non Poor)</b>	<b>200</b>	<b>100</b>

**Source:** Computed using Field Survey, 2021.

**Note:** Computation of poverty status was done using 2/3 MPCHHE of ₦135, 889.93

Grouping of households into moderate and core poor was estimated using 1/3 MPCHHE of ₦67,944.14

MPCHHE = Mean Per Capita Household Expenditure

**Table 4: Estimate of Relative Poverty Indices of Rural Farm Household in the Study Area**

Relative poverty indices	H ( $\alpha=0$ )	I ( $\alpha=1$ )	FGT( $\alpha=2$ )
	0.16	0.0847	0.0501

**Source:** Computed from Field Survey data, 2021.

H ( $\alpha=0$ ) = Head count ratio, I ( $\alpha=1$ ) = Income gap ratio and

FGT ( $\alpha=2$ ) = Severity of poverty.

#### **Determinants of Poverty Incidence among Rural Farm Households in the Study Area**

Table presents the result of logistic estimate of the determinants of poverty among rural farm households in the study area. The diagnostic statistics of estimated model yielded a log likelihood ratio 55.5232 which was significant at the 1 percent probability level; denoting the goodness of fit and the strong explanatory power of the model. The McFadden  $R^2$  value of 0.315710 denoted that about 31.5710% of variability in poverty incidence among rural farm households is accounted for by the explanatory variables included in the model. Findings showed that of the nine (9) variables that were included in the model, four(4) variables impacted significantly on poverty incidence. These were farm size gender, household size, monthly income.

Farm area has a positive coefficient and significantly impacted in poverty incidence of

rural farm households at 10% probability level. This implies that poverty incidence will increase for households with small farm area and reduces for household with large farm area. Farm lands are assets that can be invested on, lease out, sold out rightly or mortgaged as collateral for wars. Hence, acquisition of large farm land will imply increase in the wealth status of food crop farmers. Findings support those of Asogwa *et al.*, (2012) and Akpan *et al.* (2016).

The coefficient of gender is positive and significant at the 10% level of probability. This implies that poverty is more in male headed households compared with female headed households". This is consistent with the findings of Mohammed *et al.*, (2014) and Awotide *et al.* (2012) that poverty incidence is high among the male headed households in Nigeria. The household size has a negative coefficient (-1.13830) and significantly reducing poverty incidence at 1% level of probability. This

implies that the larger the size of the household the more the likelihood of being poor. This shows that bigger households tend to reduce per capita income available and hence the average per capita expenditure reduces as household size increases. Bigger household sizes can therefore be said to be poor, especially where there are more dependent members. This finding corresponds with that of Ademola and Abang (2015) and Okorie *et al.* (2020) who asserted

that increasing household size will increase poverty incidence among rural farm households. The monthly income coefficient was positive and significantly increasing poverty incidence at 1% level of probability. This supports theoretical postulation because farmers with lower monthly income will not be liquid enough to meet their financial obligations and also acquire other farm production assets through which they can boost their farm output and enhance their income level.

**Table 5: Estimate of the Logit Model for the Determinant of Poverty among Rural Farm Households in the Study Area**

Variables	Coefficient	Std. Error	Z	P-value
Constant	5.69709	3.25882	1.748	0.0804*
Cooperative membership	-0.0327601	1.42334	-0.02302	0.9816
Farm size	1.62373	0.934330	1.738	0.0822*
Gender	1.48745	0.770760	1.930	0.0536*
Educational level	-0.0551854	0.0536835	-1.028	0.3040
Farming experience	0.0564144	0.0539799	1.045	0.2960
Marital status	-0.000823064	0.456014	-0.001805	0.9986
Household size	-1.13830	0.243953	-4.666	<0.0001***
Age	-0.00592132	0.0498251	-0.1188	0.9054
Monthly income	3.68038e-05	1.27456e-05	2.888	0.0039***
Mean dependent var	0.840000	S.D. dependent var	0.367526	
McFadden R-squared	0.315710	Adjusted R-squared	0.201988	
Log-likelihood	-60.17236	Akaike criterion	140.3447	
Schwarz criterion	173.3279	Hannan-Quinn	153.6925	
Number of cases 'correctly predicted' = 174 (87.0%)				
f(beta'x) at mean of independent vars = 0.368				
Likelihood ratio test: Chi-square(9) = 55.5232 [0.0000]				

**Source:** Computed from field data, 2021.

\*Significant at 10% level, \*\*Significant at 5% level, \*\*\*Significant at 1% level

### Conclusion

Majority of the respondents did not have access to credit and were non-members of social organization. The result presentation in this study shows that majority of the farm households in the study area were non-poor, while lesser households were found to be poor. The sustainability of their livelihood measured by their poverty status was observed to be positively influenced by farm area, gender and

monthly income while household size has negative effect on poverty

### Recommendations

Base on the findings made on this research, the following recommendations were made: (a) There is need to encourage the females to participate effectively in farming activities by providing incentives and extension training programmes to assist them, in order to enhance their income level thereby alleviating poverty in

their households.

(b) Government should embark on enlightenment campaign on the importance of family planning in order to reduce cases of large farming household.

(c) Government should provide financial assistance to enable these farmers increase their farm sizes by leasing or purchasing lands to cultivate which would enhance increase in their income level.

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