

# **The Empirical Studies**

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## TABLE 6: DISTRIBUTION OF VARIABLES IN TERMS OF RANGE, STANDARD DEVIATION AND COEFFICIENT OF VARIANCE

VARIABLES	MINIMUM	MAXIMUM	MEAN	MEDIAN	SD	CV%
AGE (X <sub>1</sub> )	12	55	31.484	31	7.905679	25.10
EDUCATION (X <sub>2</sub> )	2	17	11.560	12	3.835578	33.17
FAMILY SIZE (X <sub>3</sub> )	2	16	5.227	4	2.693556	51.52
MEDIA INTERACTION (X <sub>4</sub> )	0.25	67	11.586	7.64	11.8529	102.29
PER CAPITA HOLDING SIZE (X <sub>5</sub> )	0.01	125	2.539	0.395	15.41227	106.85
CROPPING INTENSITY (X <sub>6</sub> )	0	90	45.591	49	27.91097	61.21
TECHNOLOGY SOCIALIZATION STATUS (X <sub>7</sub> )	5.5	100	47.806	45.71	24.69593	51.65
FAMILY INCOME (X <sub>8</sub> )	151.51	33150	3518.008	2124.5	4572.604	109.97
EXPENDITURE AFTER HEALTH (X <sub>8</sub> )	0	90	30.551	20	24.54951	80.35
ANIMAL HEALTH MENTORING(X <sub>10</sub> )	1	73	20.227	17	15.97093	78.95
LOCATION OF THE MARKET (X <sub>11</sub> )	1	47	12.654	10	10.84177	85.67
CLIMATE CHANGE PERCEPTION (Y1)	16	100	55.018	59	24.40594	44.35
YIELD CHANGE PERCEPTION (Y2)	10	100	47.031	42.75	20.71933	44.05
WATER BODIES PERCEPTION (Y3)	10	96	55.318	56.5	25.00348	45.19

HEALTH PROBLEM PERCEPTION (Y4)	7.5	100	59.792	60	21.94993	36.70
SPECIES DECLINE PERCEPTION (Y5)	5.2	96	27.877	22.525	17.47598	62.68
PERCEPTION INDICATOR CHANGE (Y6)	-14	70	9.244	4.15	13.64429	107.58
LANDSLIDE PERCEPTION (Y7)	10	100	55.787	56.5	21.84245	39.15
DISTANCE PERCEPTION (Y8)	0.66	56.75	5.544	3.685	7.489885	105.09

## RESULTS

Table-6: presents distribution of variables in terms of range, SD and CV%. It has been found from the study that the maximum "Age" ( $X_1$ ) of study group is 55 years and minimum age is 12 years. The mean age of the group is found to be 31 years. Coefficient of variance denotes that the CV of age is 25.10 %, which shows that the distribution of age is high level of consistent in nature.

The "Education" (X2) of respondents is roughly primary school and maximum education upto graduation. This independent variable showed a coefficient of variance of around 33.17 %, which shows that the distribution of schooling year is high level consistent in nature.

The **"Family size"** (X3) is in the range of 2 to 16 members per family. The data recorded SD of 2.69 and CV of 51.5 % which shows medium level of consistency of family size.

The "Media Interaction" (X4) recorded data SD of 11.8 and CV of 102.2 % which shows inconsistency of media interaction.

The "Per Capita Holding Size" (X5) recorded a data of SD 15.41 and CV of 106.85% which shows inconsistency of per capita holding size.

The "Cropping Intensity" (X6) of the study group is Minimum 0 % and maximum 90 % and CV is about 61.21 % which is showing medium level of consistency.

The **"Technology Socialization Status" (X7)** has a range of 5.5 % minimum to 100 % maximum. The independent variable showed a coefficient of variance around 51.65 % which shows medium level of consistency.

The "Family Income" (X8) recorded a data of SD 4572.6 and CV of 109.97 % which shows a little inconsistency in family income.

The "Expenditure after Health" (X9) recorded a data of SD 24.54 and a CV of 80.35 % which shows medium level of consistency.

The "Animal Health Mentoring" (X10) is in the range of minimum 1 % and a maximum of 73 % and CV is about 78.95 which shows medium level of consistency.

The "Location of the Market"  $(X_{11})$  is in the range of 1 % minimum and a maximum of 47 %. The data recorded SD of 10.84 and CV of 85.67 % which shows medium level of consistency.

The Dependent variables, Climate change perception (Y1), Yield change perception (Y2), Water bodies perception (Y3), Health problem perception (Y4), Species decline perception (Y5), Perception indicator change (Y6), Landslide perception (Y7), Distance perception (Y8) have recorded maxima of 100, 100, 96, 100, 96, 70, 100 and 56.75 respectively and minima of 16, 10, 10, 7.5, 5.2, -14, 10 and 0.66 respectively. The variables Y1, Y2, Y3, Y4 and Y7 have shown high consistency in terms of their distribution, Y5 has shown medium level of consistency and variable Y6 and Y8 have shown inconsistency respectively, by recording a standard deviation of 24.40, 20.71, 25, 21.94, 17.47, 13.64, 21.84 and 7.48 respectively.

## TABLE 7: CO-EFFICIENT OF CORRELATION BETWEEN CCP (Y1) AND ELEVEN INDEPENDENT VARIABLES(X1.....X11)

Sl. No.	r-Value
AGE (X <sub>1</sub> )	-0.069
EDUCATION (X2)	0.246*
FAMILY SIZE (X3)	0.024
MEDIA INTERACTION (X4)	0.078
PER CAPITA HOLDING SIZE (X5)	-0.134
CROPPING INTENSITY (X6)	-0.018
TECHNOLOGY SOCIALIZATION STATUS (X7)	0.143
FAMILY INCOME (X8)	0.101
EXPENDITURE ON HEALTH (X9)	0.080
ANIMAL HEALTH MENTORING(X10)	-0.103
LOCATION OF THE MARKET (X11)	-0.194

CCP (Y1) = CLIMATE CHANGE PERCEPTION (Significance of r at 0.05 level = 0.242)\*

## RESULT

#### Revelation

Table-7: presents the coefficient of correlation between climate change perception (Y1) and, eleven independent variables. It has been found that the variable, **Education (X2)** has recorded a positive and significant correlation with **Climate change perception (Y1)**.

## 1. IMPLICATION

Education simmers the process of cognitive changes, motivational changes and motor changes in a positive direction. The education of the respondents, here, has got a strong associational impact in generating a better perception of climate change.

It has helped having an observation to take account of a miniscule to a major climatic change that has impacted on changing agriculture, animal enterprise, public health, biodiversity reduction and so on.

## TABLE 8: CO-EFFICIENT OF CORRELATION BETWEEN YCP (Y2) AND ELEVEN INDEPENDENT VARIABLES(X1.....X11)

Sl. No.	r-Value
AGE (X <sub>1</sub> )	0.030
EDUCATION (X2)	0.252*
FAMILY SIZE (X3)	-0.038
MEDIA INTERACTION (X4)	0.204
PER CAPITA HOLDING SIZE (X5)	-0.120
CROPPING INTENSITY (X6)	-0.158
<b>TECHNOLOGY SOCIALIZATION STATUS (X7)</b>	0.083

FAMILY INCOME (X8)	0.100	
<b>EXPENDITURE ON HEALTH (X9)</b>	0.031	
ANIMAL HEALTH MENTORING (X10)	0.145	
LOCATION OF THE MARKET (X11)	-0.376**	
YCP (Y2) = YIELD CHANGE PERCEPTION		

(Significance of r at 0.05 level= 0.242)\*

(Significance of r at 0.01 level= 0.315) \*\*

(Significance of r at 0.10 level= 0.204)

#### RESULT

#### Revelation

Table-8: presents the coefficient of correlation between yield change perception (Y2) and eleven independent variables. It has been found that the variable **Media interaction (X4)** and **Education (X2)** has recorded a positive and significant correlation with **Yield change perception (Y2)**. The other variable **Location of the market (X**<sub>11</sub>) has recorded a negative but significant correlation on Yield change perception (Y2).

#### 2. IMPLICATION

Education helps the respondents move for a wider and diverse exposure to farm enterprises and farm operation and consequently build up a meticulous observation or yield decline or change.

The variable, media interaction (X4), has also exerted positive bearing on YCP (at 10% level) Shorter the distance to market from dwelling place, the higher would be the market interaction, which would help to take a note on market lending of different crops, fishes, vegetables and heir trend of decline in the local areas of production.

#### MODEL-1:- COEFFICIENT OF CORRELATION BETWEEN CCP (Y1) AND ELEVEN INDEPENDENT VARIABLES



X2= EDUCATION (0.246)\* CCP= CLIMATE CHANGE PERCEPTION The variable Education (X2) has recorded the strong and discernible impact on climate change perception (Y1).

## MODEL-2:- COEFFICIENT OF CORRELATION BETWEEN YCP (Y2) AND ELEVEN INDEPENDENT VARIABLES



#### X2= EDUCATION (0.252)\* X4= MEDIA INTERACTION (<u>0.204</u>) X11= LOCATION OF THE MARKET (-0.376)\*\* YCP= YIELD CHANGE PERCEPTION The variables Education (X2), Media interaction (X4), and Location of the market (X11) have recorded strong and discernible impact on yield change perception (Y2).

## TABLE 9: CO-EFFICIENT OF CORRELATION BETWEEN WBP (Y3) AND ELEVEN INDEPENDENT VARIABLES(X1.....X11)

Sl. No.	r-Value
AGE (X <sub>1</sub> )	-0.114
EDUCATION (X2)	-0.031
FAMILY SIZE (X3)	0.090
MEDIA INTERACTION (X4)	0.133
PER CAPITA HOLDING SIZE (X5)	-0.066
CROPPING INTENSITY (X6)	-0.159
<b>TECHNOLOGY SOCIALIZATION STATUS (X7)</b>	0.242*
FAMILY INCOME (X8)	0.032
EXPENDITURE ON HEALTH (X9)	0.163
ANIMAL HEALTH MENTORING (X10)	0.131
LOCATION OF THE MARKET (X11)	-0.055
P (Y3) = WATER BODIES PERCEPTION (Signif	ficance of r at 0.05 level= 0

#### RESULT

#### Revelation

Table-9: presents the coefficient of correlation between Water bodies perception (Y3) and eleven independent variables. It has been found that the variable Technology socialization status (X7) has established a strong and positive association with water bodies perception (Y3).

#### 3. IMPLICATION

Higher technology socialization status implies modern, diverse and water centric crop enterprises, and that in turn helps move closer to water body perception. Any change, decline or shift, in water location should have a paramount impact on the life and occupation, on existence and agility of a score of diasporas.

## TABLE 10: CO-EFFICIENT OF CORRELATION BETWEEN HPP (Y4) AND ELEVEN INDEPENDENT VARIABLES(X1.....X11)

Sl. No.	r-Value
AGE (X <sub>1</sub> )	-0.092
EDUCATION (X2)	0.133
FAMILY SIZE (X3)	-0.099
MEDIA INTERACTION (X4)	0.134
PER CAPITA HOLDING SIZE (X5)	-0.059
<b>CROPPING INTENSITY (X6)</b>	-0.066
<b>TECHNOLOGY SOCIALIZATION STATUS (X7)</b>	0.165
FAMILY INCOME (X8)	0.044
<b>EXPENDITURE ON HEALTH (X9)</b>	0.109
ANIMAL HEALTH MENTORING(X10)	0.135
LOCATION OF THE MARKET (X11)	-0.130

HPP (Y4) = HEALTH PROLEM PECEPTION

## RESULT

#### Revelation

Table-10: presents the coefficient of correlation between **Health problem perception (Y4)** and eleven independent variables. It has been found that none of the variables has been found to record a significant level of correlation.

#### 4. IMPLICATION

By ranking the values in an ascending manner, it has been found that the variable **Technology socialization status (X7)** has got a near significant relationship with health problem perception. To elicit the directional flow of relation, the coefficient values have undergone path analysis subsequently.

#### MODEL-3:- COEFFICIENT OF CORRELATION BETWEEN WBP (Y3) AND ELEVEN INDEPENDENT VARIABLES



X7=TECHNOLOGY SOCIALIZATION STATUS (0.242)\* WBP= WATER BODIES PERCEPTION The variable Technology socialization status (X7) has recorded strong and discernible impact on water bodies' perception (Y3

#### MODEL-4:- COEFFICIENT OF CORRELATION BETWEEN HPP (Y4) AND ELEVEN INDEPENDENT VARIABLES



HPP= Health problem perception None of the variables has recorded significant correlation with the dependent variable Health problem perception (Y4). However, the variables are set following their proximity in the interaction with dependent variable.

TABLE 11: CO-EFFICIENT OF CORRELATION BETWEEN SDP (Y5) AND ELEVEN
INDEPENDENT VARIABLES(X1X11)

Sl. No.	r-Value
AGE (X <sub>1</sub> )	0.005
EDUCATION (X2)	0.023
FAMILY SIZE (X3)	-0.088
MEDIA INTERACTION (X4)	0.070
PER CAPITA HOLDING SIZE (X5)	0.005
<b>CROPPING INTENSITY (X6)</b>	0.058
<b>TECHNOLOGY SOCIALIZATION STATUS (X7)</b>	-0.187
FAMILY INCOME (X8)	0.047
EXPENDITURE ON HEALTH (X9)	-028
ANIMAL HEALTH MENTORING(X10)	-0.017
LOCATION OF THE MARKET (X11)	-0.250*

SDP= SPECIES DECLINE PERCEPTION (Significance of r at 0.05 level= 0.242)\*

#### RESULT

#### Revelation

Table-11: presents the coefficient of correlation between **Species decline perception (Y5)** and eleven independent variables. The variable **Location of the market (X**<sub>11</sub>) has recorded significant but negative association on Species decline perception (SDP)

#### 5. IMPLICATION

The result shows that the lesser the distance of market, the higher has been the perception on species decline. The areas are conspicuous by having traditional markets (e.g.-Chongthang) blessed with landing of local vegetables , pieces and animal resources for sale . The close and proximate interaction with local market should provide the keen observation for any person frequent to the market staying at a shorter distance on the arrival of different vegetables and heir decline of landing.Market in this study has contributed to build up a perception of species decline through an intimate stock checking of differential market landing.

## TABLE 12: CO-EFFICIENT OF CORRELATION BETWEEN PIC (Y6) AND ELEVEN INDEPENDENT VARIABLES(X1.....X11)

Sl. No.	r-Value
AGE (X <sub>1</sub> )	0.034
EDUCATION (X2)	0.203
FAMILY SIZE (X3)	-0.176
MEDIA INTERACTION (X4)	-0.164
PER CAPITA HOLDING SIZE (X5)	-0.090
<b>CROPPING INTENSITY (X6)</b>	-0.195
<b>TECHNOLOGY SOCIALIZATION STATUS (X7)</b>	-0.285*
FAMILY INCOME (X8)	0.510**
<b>EXPENDITURE ON HEALTH (X9)</b>	-0.037
ANIMAL HEALTH MENTORING (X10)	0.136
LOCATION OF THE MARKET (X11)	0.001

PIC= PERCEPTION INDICATOR CHANGE

(Significance of r at 0.05 level= 0.242)\*

(Significance of r at 0.01 level= 0.315) \*\*

## RESULT

### Revelation

Table-12: presents the coefficient of correlation between **Perception indicator change (Y6) and** eleven independent variables. It has been found that the variable **Technology socialization status (X7)** has recorded significant but negative association with Perception indicator change. The other variable, **Family income (X8)**, has got a strong and negative association with Perception indicator change (PIC).

#### 6. IMPLICATION

It perhaps suggests that the respondents have been low key technology socialization process, getting closer to traditional cultivation practices or customs, have a better prediction or estimation on climate change by using local indicators. Modernization as a process and as an approach as well may have drifted the tension of the respondents away from the proximate observation of minute to mega changes in climatological behaviour and their proportionate impacts on from the dynamics of hill ecosystem as evinced through this ecosystem.

Higher income permits and provocates wider geographical movement and at the same time intimate interaction with the variance of ecological set up and climatological variance. However a suitable path analysis can elicit the directional analysis of this influences to take and estimate that what are the contribution of direct effect of this variables on the Perception indicator change.



X11= LOCATION OF THE MARKET(-0.250)\* SDP=SPECIES DECLINE PERCEPTION The variable Location of the market (X11) has recorded strong and discernible impact on species decline perception (SDP).

## **MODEL-6:- COEFFICIENT OF CORRELATION BETWEEN PIC (Y6) AND ELEVEN INDEPENDENT VARIABLES**



#### X7=TECHNOLOGY SOCIALIZATION STATUS (-0.285)\* X8=FAMILY INCOME (0.510) \*\* **PIC=PERCEPTION INDICATOR CHANGE** The variable Technology socialization status (X7) and Family income (X8) has recorded strong and discernible impact on perception indicator change (Y6).

#### TABLE 13: CO-EFFICIENT OF CORRELATION BETWEEN LP (Y7) AND ELEVEN **INDEPENDENT VARIABLES**(X<sub>1</sub>....,X<sub>11</sub>)

Sl. No.	r-Value
AGE (X <sub>1</sub> )	-0.148
EDUCATION (X2)	0.157
FAMILY SIZE (X3)	-0.044
MEDIA INTERACTION (X4)	-0.156
PER CAPITA HOLDING SIZE (X5)	0.078
<b>CROPPING INTENSITY (X6)</b>	0.033
<b>TECHNOLOGY SOCIALIZATION STATUS (X7)</b>	0.212
FAMILY INCOME (X8)	0.037
EXPENDITURE ON HEALTH (X9)	-0.076
ANIMAL HEALTH MENTORING(X10)	-0.171
LOCATION OF THE MARKET (X11)	0.055
LP=LANDSLIDE PERCEPTION (Significance o	f r at 0.10  evel = 0.204

ANDSLIDE PERCEPTION (Significance of r at 0.10 level= 0.204)

## RESULT

#### Revelation

Table-13: presents the coefficient of correlation between Landslide perception (Y7) and eleven independent variables. It has been found that the variable Technology socialization status (X7) has recorded a significant impact and of course at 0.10 level of significance.

\*\*

## 7. IMPLICATION

This may suggest that the respondents having broader and deeper exposure to Technology socialization status couldn't envisage and elucidate the events of landslide with a better perception technology modernization and in a fragile hill ecosystem an occurrence of landslide may have a geomorphologic synchronization contributing to a subgenres perception of landslide.

## TABLE 14: CO-EFFICIENT OF CORRELATION BETWEEN DP (Y8) AND ELEVEN INDEPENDENT VARIABLES(X1.....X11)

Sl. No.	r-Value
AGE (X <sub>1</sub> )	-0.002
EDUCATION (X2)	0.040
FAMILY SIZE (X3)	0.148
MEDIA INTERACTION (X4)	-0.042
PER CAPITA HOLDING SIZE (X5)	-0.045
<b>CROPPING INTENSITY (X6)</b>	-0.171
<b>TECHNOLOGY SOCIALIZATION STATUS (X7)</b>	0.081
FAMILY INCOME (X8)	-0.071
<b>EXPENDITURE ON HEALTH (X9)</b>	0.137
ANIMAL HEALTH MENTORING (X10)	0.346 **
LOCATION OF THE MARKET (X11)	0.483 **
P= DISTANCE PERCEPTION (Significance o	f r at 0.01 level= 0.315

## RESULT

## Revelation

Table-14: presents the coefficient of correlation between **Distance perception (Y8)** and eleven independent variables It has been found that the variable **Animal health Mentoring(X10)** and variable **Location of the market (X**<sub>11</sub>) have recorded positive and significant impact on Distance perception (DP)

## 8. IMPLICATION

Positive impact of shorter market distance on animal health delineates the easy accessibility of animal feed concentrate as well as animal health centres either of which has an immense utilization in growth, vigour and productiveness of an animal. Therefore, it can be inferred from the above that less the distance from the market better is the observation on animal health care and health monitoring. This would lead to also a better observation taken by the people in terms of the changes in both physiological and reproductive behaviour of animal Diaspora.

#### MODEL-7:- COEFFICIENT OF CORRELATION BETWEEN LP (Y7) AND ELEVEN INDEPENDENT VARIABLES



X7=TECHNOLOGY SOCIALIZATION STATUS (0.212) LP= LANDSLIDE PERCEPTION The variable Technology socialization status (X7) has recorded strong and discernible impact on Landslide perception (Y7).

#### MODEL-8:- COEFFICIENT OF CORRELATION BETWEEN DP (Y8) AND ELEVEN INDEPENDENT VARIABLES



X10=ANIMAL HEALTH MENTORING (0.346) \*\* X11= LOCATION OF THE MARKET (0.483) \*\* DP= DISTANCE PERCEPTION The variables Animal health Mentoring (X10) and Location of the market (X11) have recorded strong and discernible impact on distance perception (Y8).

## TABLE 15: CO-EFFICIENT OF CORRELATION BETWEEN CCCP (Y) AND ELEVEN INDEPENDENT VARIABLES(X1.....X11)

Sl. No.	r-Value
AGE (X <sub>1</sub> )	-0.08
EDUCATION (X2)	0.343**
FAMILY SIZE (X3)	0.019
MEDIA INTERACTION (X4)	0.008
PER CAPITA HOLDING SIZE (X5)	-0.195
CROPPING INTENSITY (X6)	-0.242*
TECHNOLOGY SOCIALIZATION STATUS (X7)	0.011
FAMILY INCOME (X8)	0.253*
EXPENDITURE ON HEALTH (X9)	0.094
ANIMAL HEALTH MENTORING (X10)	0.145
LOCATION OF THE MARKET (X11)	-0.089

## CCCP= COMPREHENSIVE CLIMATE CHANGE PERCEPTION

(Significance of r at 0.05 level= 0.242)\* (Significance of r at 0.01 level= 0.315) \*\*

#### RESULT

#### Revelation

Table-15: presents the coefficient of correlation between **Comprehensive climate change perception (Y)** and eleven independent variables. It has been found that the variables **Education (X2)** and **Family income (X8)** have recorded positive and significant impact on Comprehensive climate change perception. The other variable **Cropping intensity (X6)** has recorded significant but negative impact on Comprehensive climate change perception (Y).

## 9. IMPLICATION

Education in tandem with family income also projects a massive impression on CCCP by promoting effective understanding of the ongoing natural and climatological phenomenon.

Education, cropping intensity and family income are 3 such characters that have been interwovenly impacting on CCCP. The operational link can be like that Education provides a pseudo urbanite disposition and a utilitarian role in increasing cropping intensity by adapting modern technology being supported by family income. These altogether have driven the educated and trend mind for guessing and estimating climatological change in a comprehensive manner.



The variables Education (X2), Cropping intensity (X6) and Family income (X8) have recorded strong and discernible impact on comprehensive climate change perception.

## TABLE 16:PATH ANALYSIS: CCP (Y1) Vs ELEVEN EXOGENOUS VARIABLES

VARIABLES	TOTAL EFFECT	DIRECT EFFECT	INDIRECT EFFECT	DOMINATING INDIVIDUAL EFFECT		
AGE (X <sub>1</sub> )	-0.069	-0.075	0.006	-0.034 (X10)	0.030 (X9)	0.027 (X3)
EDUCATION (X2)	0.246	0.292	0.046	-0.064 (X3)	-0.044 (X6)	0.038 (X11)
FAMILY SIZE (X3)	0.024	0.175	0.151	-0.107 (X2)	0.067 (X11)	0.037 (X9)
MEDIA INTERACTION (X4)	0.078	0.013	0.065	0.038 (X3)	0.022 (X6)	0.024 (X9)
PER CAPITA HOLDING SIZE (X5)	-0.134	-0.041	0.093	-0.067 (X2)	-0.015 (X7)	-0.009 (X9)
CROPPING INTENSITY (X6)	-0.018	0.099	0.081	-0.129 (X2)	0.053 (X3)	-0.032 (X11)
TECHNOLOGY SOCIALIZATION STATUS (X7)	0.143	0.098	0.045	-0.019 (X2)	0.018 (X9)	0.013 (X1)

EAMILVINCOME (V9)	0 101	0.078	0.023	0 112 (V2)	-0.061	-0.033
FAMILY INCOME (A8)	0.101		0.025	0.112 (A2)	(X3)	(X6)
EXPENDITURE AFTER	0.090	0.100	0.02	0.065 (X3)	-0.047	-0.037
HEALTH (X9)	0.080	0.100	0.02		(X10)	(X2)
ANIMAL HEALTH	0.102	-0.109	0.006	0.042 (V0)	-0.032	0.025
MENTORING(X10)	-0.105		0.006	0.045 (A9)	(X11)	(X3)
LOCATION OF THE	0.104	0 177	0.017	0.066 (X3)	-0.062	-0.020
MARKET (X <sub>11</sub> )	-0.194	-0.177	0.017		(X2)	(X10)

Residual calculation= 0.416 CCP= CLIMATE CHANGE PERCEPTION

#### RESULT

Table-16: presents the path analysis by decomposing the coefficient of correlation into direct, indirect and residual effect. It is depicted that the variable **Education (X2)** has exerted both the highest direct and total effect on climate change perception (CCP). The variable **Education (X2)** has routed the highest indirect effect of as many as **5 times** to characterize the consequent variable Climate Change Perception (Y1).

CCP is a strong proposition for those have better and higher education. It might due to their higher exposure into the world of global concern for global climate change. For the people endowed with lesser educational experience, the CCP is running at low ebb.

VARIABLES	TOTAL	DIRECT	INDIRECT	DOMINATII El	FING INDIVIDUAL EFFECT	
	LFFEUI	EFFECI	EFFECT	Ι	II	III
AGE (X <sub>1</sub> )	0.030	-0.040	-0.01	0.082 (X10)	-0.062 (X9)	0.036 (X3)
EDUCATION (X2)	0.252	0.137	0.115	0.097 (X11)	-0.086 (X3)	0.032 (X6)
FAMILY SIZE (X3)	-0.038	0.236	0.198	-0.170 (X11)	-0.077 (X9)	0.037 (X10)
MEDIA INTERACTION (X4)	0.200	0.126	0.074	0.052 (X3)	-0.050 (X9)	0.048 (X11)
PER CAPITA HOLDING SIZE (X5)	-0.120	-0.099	0.021	-0.031 (X2)	0.018 (X9)	0.017 (X11)
CROPPING INTENSITY (X6)	-0.158	-0.073	0.085	-0.082 (X11)	0.072 (X3)	-0.060 (X2)
TECHNOLOGY SOCIALIZATION STATUS (X7)	0.083	0.067	0.016	-0.038 (X9)	0.032 (X11)	0.017 (X4)
FAMILY INCOME (X8)	0.100	0.058	0.042	-0.083 (X3)	0.058 (X11)	0.052 (X2)
EXPENDITURE AFTER HEALTH (X9)	0.031	-0.205	-0.174	0.113 (X10)	0.088 (X3)	0.030 (X4)
ANIMAL HEALTH MENTORING(X10)	0.145	0-259	0.114	-0.089 (X9)	-0.082 (X11)	0.034 (X3)
LOCATION OF THE MARKET (X <sub>11</sub> )	-0.376	-0.452	0.076	0.088 (X3)	0.047 (X10)	-0.029 (X2)

## RESULT

Table-17: presents the path analysis by decomposing the coefficient of correlation into direct, indirect and residual effect. It is depicted that variable **Location of the market**  $(X_{11})$  has exerted both the highest direct and total effect on yield change perception wherein, Family size (X3) has exerted the highest indirect effect on YCP. Both the variables family size (X3) and Location of the market  $(X_{11})$  have routed the highest indirect effect of as many as 3 times for each on the YCP. So it is to conclude that YCP has been conditioned and characterized by distance from the market and family size hugely nevertheless, Education (X2) has got a significant bearing on it.



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VARIABLES	TOTAL EFFECT	DIRECT EFFECT	INDIRECT EFFECT	DOMINA	TING INDIV	IDUAL
				Ι	II	III
AGE (X <sub>1</sub> )	-0.114	-0.172	0.058	0.042	-0.032	0.027
				(X10)	(X7)	(X4)
EDUCATION (X2)	-0.031	-0.158	0.127	0.105	-0.050	0.036
				(X6)	(X3)	(X8)
FAMILY SIZE (X3)	0.090	0.137	-0.047	-0.073	0.058 (X2)	-0.033
				(X6)		(X8)
MEDIA	0.113	0.132	0.001	-0.053	-0.036	0.030
<b>INTERACTION (X4)</b>				(X6)	(X1)	(X3)
PER CAPITA	-0.066	-0.072	0.138	0.036	-0.031 (X7)	0.011
HOLDING SIZE (X5)				(X2)		(X1)
CROPPING	-0.159	-0.238	-0.079	0.070	0.042 (X3)	-0.031
INTENSITY (X6)				(X2)		(X8)
TECHNOLOGY	0.242	0.203	0.039	0.028 (X1)	-0.025	0.018
SOCIALIZATION					(X6)	(X4)
STATUS (X7)						
FAMILY INCOME	0.032	0.093	-0.061	0.080	-0.061	-0.048
(X8)				(X6)	(X2)	(X3)
EXPENDITURE	0.163	-0.002	0.161	0.057	-0.052	0.051
AFTER HEALTH				(X10)	(X1)	(X3)
(X9)						
ANIMAL HEALTH	0.131	0.132	0.263	-0.054	0.036 (X6)	0.023
MENTORING(X10)				(X1)		(X4)
LOCATION OF THE	-0.055	-0.086	0.031	0.051	-0.043	0.034
MARKET (X <sub>11</sub> )				(X3)	(X6)	(X2)

## TABLE 18: PATH ANALYSIS: WBP (Y3) Vs ELEVEN EXOGENOUS VARIABLES

Residual calculation= 0.411 WBP= WATER BODIES PERCEPTION

## RESULT

Table-18: presents the path analysis by decomposing the coefficient of correlation into direct, indirect and residual effect. It is depicted that the variable, **Cropping intensity (X6)**, has got the highest direct effect on WBP to suggest that water and crop enterprises are of reversely but intimately interactive in a hill ecosystem to create a dominant impact on each other .The other variable, **Animal health Mentoring(X10)**, has recorded the highest indirect effect to suggest that WBP closely relates animal heath too. The migrations of birds, cattle's, bovines etc are clearly dictated by the availability and seasonality of water from a water body. The variable **Cropping intensity (X6)** has routed the highest indirect effect of as many as **4 variables** to characterize the WBP. So, cropping intensity can be strategic consideration where in Water bodies perception is likely to play a pivotal role.

## TABLE 19:PATH ANALYSIS: HPP (Y4) Vs ELEVEN EXOGENOUS VARIABLES

VARIABLES	TOTAL	DIRECT	INDIRECT	DOMINATING INDIVIDUAL EFFECT		
	EFFECT	EFFECT	EFFECT	Ι	II	III
AGE (X <sub>1</sub> )	-0.092	-0.158	0.066	0.051 (X10)	0.026	0.023
					(X9)	(X4)

						1
EDUCATION (X2)	0.133	0.085	0.048	0.038 (X3)	0.019	0.015
					(X11)	(X1)
FAMILY SIZE (X3)	-0.099	-0.103	0.004	-0.033 (X11)	0.032 (X9)	-0.031
						(X2)
MEDIA INTERACTION	0.134	0.112	0.022	-0.033 (X1)	0.028	0.023
(X4)					(X10)	(X3)
PER CAPITA HOLDING	-0.059	-0.024	0.035	-0.020	-0.017	0.010
SIZE (X5)				(X2)	(X7)	(X1)
<b>CROPPING INTENSITY</b>	-0.066	0.031	-0.035	-0.038 (X2)	-0.032	0.026
(X6)					(X3)	(X4)
TECHNOLOGY	0.165	0.111	0.276	0.025 (X1)	0.016 (X9)	0.015
SOCIALIZATION						(X4)
STATUS (X7)						
FAMILY INCOME (X8)	0.044	0.009	0.053	0.036 (X3)	0.033 (X2)	-0.014
						(X7)
EXPENDITURE AFTER	0.109	0.085	0.024	0.071 (X10)	-0.048	-0.039
HEALTH (X9)					(X1)	(X3)
ANIMAL HEALTH	0.134	0.163	0.029	-0.050 (X1)	0.037 (X9)	0.019
MENTORING(X10)						(X4)
LOCATION OF THE	0.130	-0.089	0.219	-0.039 (X3)	0.029 (X10)	-0.018
MARKET (X <sub>11</sub> )						(X2)

Residual calculation= 0.342

HPP= HEALTH PROBLEM PERCEPTION

#### RESULT

Table-19: presents the path analysis by decomposing the coefficient of correlation into direct, indirect and residual effect. It is depicted that the variable **Technology socialization status (X7)** has recorded the highest indirect effect to establish its strong companionship on Health Problem Perception (HPP).

The other variable **Animal health Mentoring**(X10) has recorded a distinct direct effect on HPP. This would further indicate that in changing climatic situation animal health problems might be the more dependable predictor to estimate the overall HPP.

Both the variables Family size (X3) and Age ( $X_1$ ) have routed the highest indirect effect of as many as 3 times for each to move their imbibing impact on HPP.



**MODEL-12 PATH ANALYSIS: - WBP (Y3) Vs ELEVEN EXOGENOUS VARIABLES** 

HDE= HIGHEST DIRECT EFFECT HIDE= HIGHEST INDIRECT EFFECT HIIE= HIGHEST INDIRECT INDIVIDUAL EFFECT WBP= WATER BODIES PERCEPTION X6= CROPPING INTENSITY X10= ANIMAL HEALTH

**MODEL-13 PATH ANALYSIS: - HPP (Y4) Vs ELEVEN EXOGENOUS VARIABLES** 



	TOTAL	DIRECT	INDIRECT	DOMINAT	ING IND	INDIVIDUAL	
VARIABLES	EFFECT	EFFECT	EFFECT	EFFECT	п	TTT	
				1	11	III 0.025	
AGE (X <sub>1</sub> )	0.005	-0.074	-0.069	-0.052 (X9)	0.045 (X10)	0.035 (X7)	
EDUCATION (X2)	0.023	-0.053	-0.03	0.073 (X11)	-0.057 (X6)	0.022 (X9)	
FAMILY SIZE (X3)	-0.088	0.057	-0.031	-0.128 (X11)	-0.065 (X9)	0.040 (X6)	
MEDIA INTERACTION (X4)	0.070	0.055	0.051	-0.042 (X9)	0.036 (X11)	-0.030 (X7)	
PER CAPITA HOLDING SIZE (X5)	0.005	-0.060	-0.055	0.033 (X7)	0.015 (X9)	0.013 (X11)	
CROPPING INTENSITY (X6)	0.058	0.129	0.071	-0.062 (X11)	0.024 (X2)	-0.022 (X10)	
TECHNOLOGY SOCIALIZATION STATUS (X7)	-0.187	-0.216	0.029	-0.032 (X9)	0.024 (X11)	0.014 (X6)	
FAMILY INCOME (X8)	0.047	0.063	-0.016	0.044 (X11)	-0.043 (X6)	0.027 (X7)	
EXPENDITURE AFTER HEALTH (X9)	-0.128	-0.174	0.046	0.062 (X10)	-0.040 (X7)	-0.022 (X1)	
ANIMAL HEALTH MENTORING(X10)	-0.017	0.142	0.125	-0.076 (X9)	-0.062 (X11)	-0.023 (X1)	
LOCATION OF THE MARKET (X <sub>11</sub> )	-0.250	-0.341	0.091	0.026 (X10)	0.024 (X6)	0.021 (X3)	

## TABLE 20: PATH ANALYSIS: SDP (Y5) Vs ELEVEN EXOGENOUS VARIABLES

**Residual calculation= 0.32** 

**SDP= SPECIES DECLINE PERCEPTION** 

#### RESULT

Table-20: presents the path analysis by decomposing the coefficient of correlation into direct, indirect and residual effect. It is depicted that the variable **Animal health Mentoring(X10)** has exerted the highest indirect effect on Species Decline Perception (SDP).

The other variable Location of the market  $(X_{11})$  has exerted the highest direct effect, in a negative direction.

The variables **Expenditure after health (X9)** and **Location of the market (X11)** have routed the highest indirect effect of as many as **4 times** for each to imply their high intensity of associational impact on SDP.

VARIABLES	TOTAL	DIRECT	INDIRECT	DO INDIVI	MINATIN DUAL EFI	G FECT
	EFFECI	LFFEUI	EFFEUI	Ι	II	III
AGE (X <sub>1</sub> )	0.034	-0.089	-0.055	0.065 (X10)	0.039 (X8)	0.038 (X7)

## TABLE 21: PATH ANALYSIS: PIC (Y6) Vs ELEVEN EXOGENOUS VARIABLES

EDUCATION (X2)	0 203	-0.026	0.177	0.190	0.023	-0.021
	0.205	0.020	0.177	(X8)	(X5)	(X6)
EAMILV SIZE (V2)	0 176	0.010	0.157	-0.174	0.029	-0.026
FAMILI SIZE (AS)	-0.170	0.019	-0.137	(X8)	(X10)	(X4)
MEDIA INTERACTION	0.164	0.120	0.044	-0.044	0.035	-0.031
(X4)	-0.104	-0.120	0.044	(X8)	(X10)	(X7)
PER CAPITA HOLDING	0.000	0.102	0.012	-0.043	0.036	0.007
SIZE (X5)	-0.090	-0.102	0.012	(X8)	(X7)	(X1)
<b>CROPPING INTENSITY</b>	0.105	0.047	0.149	-0.166	-0.031	-0.027
(X6)	-0.195	0.047	-0.148	(X8)	(X10)	(X4)
TECHNOLOGY				0.061	0.017	0.016
SOCIALIZATION	-0.285	-0.236	0.049	-0.001 (V9)	$(\mathbf{V5})$	-0.010 ( <b>V</b> 4)
STATUS (X7)				(ЛО)	(A3)	(A4)
EAMILY INCOME (V9)	0.50	0.406	0.014	0.029	-0.016	0.011
FAMILY INCOME (A8)	0.30	0.496		(X7)	(X6)	(X4)
EXPENDITURE AFTER	0.027	0.027	0	0.089	-0.043	0.029
HEALTH (X9)	-0.037	-0.037	0	(X10)	(X7)	(X4)
ANIMAL HEALTH	0.136	0.205	0.060	-0.028	-0.021	-0.016
MENTORING (X10)	0.130	0.203	0.009	(X1)	(X4)	(X9)
LOCATION OF THE	0.001	0.020	0.028	-0.064	0.037	0.017
MARKET (X <sub>11</sub> )	0.001	-0.029	-0.028	(X8)	(X10)	(X7)

**Residual calculation= 0.501** 

## **PIC=PEREPTION INDICATOR CHANGE**

#### RESULT

Table-21: presents the path analysis by decomposing the coefficient of correlation into direct, indirect and residual effect. It is depicted that the variable **Technology socialization status (X7)** has exerted highest total effect and the variable **Family income (X8)** has exerted highest direct effect on **PIC**. The variable **Family income (X8)** has routed the highest indirect effect of as many as **7 times** on the Perception Indicator Change (PIC).

Income is such a character as to influence indirectly the happening and performances of so many cognate social characters like Education, motivation, orientation, perception and so on. Higher income promotes better family education and also an empirical eye to take an account of what is happening in both social and biophysical ecology that is how it has recorded the highest extend of imbibing impact of other variables.



**X9= EXPENDITURE ON HEALTH** 

MODEL-15PATH ANALYSIS: - PIC (Y6) Vs ELEVEN EXOGENOUS VARIABLES



	TOTAL	DIRECT	INDIRECT	DOMINA	FING INDIV	VIDUAL							
VARIABLES	EFFECT	EFFECT	EFFECT	EFFECT									
	EFFECT	EFFECT	LITECT	I	II	III							
$ACE(\mathbf{X})$	0.148	0.013	0.135	-0.053	-0.042	-0.035							
$AGE(A_1)$	-0.140	-0.013	0.155	(X10)	(X7)	(X4)							
EDUCATION (V2)	0 157	0 200	0.152	-0.063	-0.045	-0.028							
EDUCATION (A2)	0.137	0.309	-0.132	(X6)	(X5)	(X11)							
EAMILV SIZE (V2)	0.044	0.021	0.023	-0.113	0.042	0.043							
FAMILI SIZE (X3)	-0.044	0.021	0.023	(X2)	(X11)	(X6)							
MEDIA INTERACTION	0 156	0 172	0.016	0.035	0.032	-0.029							
(X4)	-0.130	-0.172	0.010	(X7)	(X6)	(X10)							
PER CAPITA HOLDING	0.078	0.106	0.274	-0.071	-0.040	0.008							
SIZE (X5)	0.078	0.190	0.274	(X2)	(X7)	(X4)							
<b>CROPPING INTENSITY</b>	0.022	0.142	0.100	-0.137	-0.038	0.028							
(X6)	0.055	0.142	0.109	(X2)	(X4)	(X7)							
TECHNOLOGY				0.030	0.023	0.010							
SOCIALIZATION	0.212	0.264	0.264	0.264	0.264	0.264	0.264	0.264	0.264	0.052	(X5)	-0.023 (X4)	$(\mathbf{X2})$
STATUS (X7)				(A3)	(244)	(112)							
FAMILV INCOME (X8)	0.037	0.027	0.01	0.118	-0.048	-0.033							
	0.037	0.027	0.01	(X2)	(X6)	(X7)							
EXPENDITURE AFTER	-0.076	0.053	-0.023	-0.073	0.048	-0.041							
HEALTH (X9)	-0.070	0.055	-0.025	(X10)	(X7)	(X4)							
ANIMAL HEALTH	0 171	0 167	0.004	-0.030	0.024	0.023							
MENTORING (X10)	-0.171	-0.107	0.004	(X4)	(X11)	(X9)							
LOCATION OF THE	0.055	0.130	0.075	0.066	-0.030	0.026							
MARKET (X <sub>11</sub> )	0.033	0.150	0.075	(X2)	(X10)	(X6)							

## TABLE 22: PATH ANALYSIS: LP (Y7) Vs ELEVEN EXOGENOUS VARIABLES

**Residual calculation= 0.303** 

LP= LANDSLIDE PERCEPTION

-0.045

## RESULT

**EDUCATION (X2)** 

Table-22: presents the path analysis by decomposing the coefficient of correlation into direct, indirect and residual effect. It is depicted that the variable **Per capita holding size (X5)** has recorded the highest indirect effect. The other variable **Education (X2)** has recorded a distinct direct effect on Landslide Perception (LP). The variable **Education (X2)** has routed the highest indirect effect of as many as 5 times for imbibing impact on Landslide perception. Education increases the expository vision on changes in closer ecosystem and helps derive a logical conclusion and heuristic observation over what is happening in and around along in a crop the micro ecosystem and that would ultimately lead to a epitomising local knowledge.

VARIABLES	TOTAL	DIRECT	INDIRECT	DOMINATING INDIVIDUAL EFFE		G FECT
	EFFECI	EFFECI	EFFECI	Ι	II	III
	0.002	0.006	0.004	0.064	-0.025	-0.021
AGE (A1)	-0.002	-0.000	0.004	(X10)	(X6)	(X7)

-0.085

## TABLE 23: PATH ANALYSIS: DP (Y8) Vs ELEVEN EXOGENOUS VARIABLES

0.040

-0.042

(X8)

0.103

(X6)

-0.111

(X11)

FAMILY SIZE (X3)	0.148	-0.035	0.113	0.194 (X11)	-0.072 (X6)	0.039 (X8)
MEDIA INTERACTION	-0.042	0.004	-0.046	-0.055 (X11)	-0.052 (X6)	0.035 (X10)
PER CAPITA HOLDING	-0.045	0.003	-0.042	-0.021	-0.020 (X7)	-0.019
CROPPING INTENSITY	-0.171	-0.234	-0.063	(X2) 0.094 (X11)	(X7) -0.038 (X2)	(X11) 0.037 (X8)
TECHNOLOGY	0.081	0.130	0.040	-0.036	-0.025	0.014
STATUS (X7)	0.081	0.150	-0.049	(X11)	(X6)	(X8)
FAMILY INCOME (X8)	-0.071	-0.110	0.039	0.078 (X6)	-0.067 (X11)	0.033 (X2)
EXPENDITURE AFTER HEALTH (X9)	0.137	0.048	0.089	0.088 (X10)	0.024 (X7)	-0.014 (X3)
ANIMAL HEALTH MENTORING (X10)	0.346	0.203	0.143	0.094 (X11)	0.036 (X6)	0.021 (X9)
LOCATION OF THE MARKET (X <sub>11</sub> )	0.483	0.517	0.034	-0.043 (X6)	0.037 (X10)	-0.018 (X2)

Residual calculation= 0.286 DP=DISTAN

**DP=DISTANCE PERCEPTION** 

#### RESULT

Table-23: presents the path analysis by decomposing the coefficient of correlation into direct, indirect and residual effect. It is depicted that the variable **Location of the market**  $(X_{11})$  has exerted both the highest direct and total effect on Distance perception.

Both the variables Location of the market  $(X_{11})$  and Cropping intensity (X6) have routed the highest indirect effect of as many as 6 times on the Distance Perception (DP).

Distance from the market and cropping intensity have been associated here for exerting a better companionship on DP vis-à-vis Climate change perception.



#### MODEL-16 PATH ANALYSIS: - LP (Y7) Vs ELEVEN EXOGENOUS VARIABLES

## **MODEL-17 PATH ANALYSIS: - DP (Y8) Vs ELEVEN EXOGENOUS VARIABLES**



HIIE= HIGHEST INDIRECT INDIVIDUAL EFFECT DP= DISTANCE PERCEPTION X10= ANIMAL HEALTH X11=DISTANCE FROM THE MARKET

VARIABLES	TOTAL	DIRECT	INDIRECT	DO INDIVI	MINATIN DUAL EFI	G FECT
	EFFECI	EFFECI	EFFECI	Ι	II	III
	0.09	0.165	0.095	0.053	0.039	-0.021
$AGE(\mathbf{A}_1)$	-0.08	-0.165	0.085	(X10)	(X3)	(X2)
EDUCATION (V2)	0 343	0.245	0.008	0.092	0.079	0.33
EDUCATION (A2)	0.343	0.243	0.098	(X3)	(X8)	(X6)
FAMILV SIZE (V3)	0.010	0.252	0 233	-0.089	-0.072	-0.048
FAMILT SIZE (AS)	0.019	0.232	0.235	(X2)	(X8)	(X11)
MEDIA INTERACTION	0.008	0.016	0.008	0.055	-0.034	0.029
(X4)	0.008	0.010	0.008	(X3)	(X1)	(X10)
PER CAPITA HOLDING	-0 195	-0.131	0.064	-0.056	-0.018	0.010
SIZE (X5)	-0.195	-0.131	0.004	(X2)	(X8)	(X1)
CROPPING INTENSITY	-0.242	-0.076	0 166	-0.108	0.077	-0.069
(X6)	-0.242	-0.070	0.100	(X2)	(X3)	(X8)
TECHNOLOGY				0.026	-0.025	0.020
SOCIALIZATION	0.011	-0.002	0.009	(X1)	(X8)	(X5)
STATUS (X7)				(111)	(110)	(110)
FAMILY INCOME (X8)	0 253	0.206	0.047	0.094	-0.088	0.025
	0.200	0.200	01017	(X2)	(X3)	(X6)
EXPENDITURE AFTER	0.094	-0.003	0.091	0.094	0.073	-0.050
HEALTH (X9)	0.071	0.002	0.071	(X3)	(X10)	(X1)
ANIMAL HEALTH	0.145	0.168	0.023	-0.052	0.036	-0.023
MENTORING(X10)	0.115	0.100	0.025	(X1)	(X3)	(X11)
LOCATION OF THE	-0.089	-0.129	0.04	0.094	-0.052	0.030
MARKET (X <sub>11</sub> )	0.007	0.127	0.01	(X3)	(X2)	(X10)

## TABLE 24: PATH ANALYSIS: CCCP (Y) Vs ELEVEN EXOGENOUS VARIABLES

Residual calculation= 0.376 CCCP= COMPREHENSIVE CLIMATE CHANGE PERCEPTION

## RESULT

Table-24: presents the path analysis by decomposing the coefficient of correlation into direct, indirect and residual effect. It is depicted that the variable **Family size (X3)** has exerted the highest direct effect and the variable **Education (X2)** has exerted the highest total effect on Comprehensive Climate Change Perception (Y).

Both the variables **Family size (X3)** and **Education (X2)** have routed the highest effect of as many as 4 times for each on the CCCP.

Family size and Education, both are representing persuasive capability to generate ediation on CCCP by steering their associational impacts. So, in studying the CCCP these two variables can be considered as to have their strategic role in estimating CCCP.

## MODEL-18 PATH ANALYSIS: - CCCP (Y) Vs ELEVEN EXOGENOUS VARIABLES



#### HDE= HIGHEST DIRECT EFFECT HIDE= HIGHEST INDIRECT EFFECT HIIE= HIGHEST INDIRECT INDIVIDUAL EFFECT CCCP= COMPREHENSIVE CLIMATE CHANGE PERCEPTION X2= EDUCATION X3= FAMILY SIZE

#### TABLE 25: REGRESSION ANALYSIS (STEPWISE):CCP (Y1) Vs ELEVEN CAUSAL VARIABLES

VARIABLES	<b>B VALUE</b>	t VALUE
X2 (EDUCATION)	1.56	2.03

#### **MODEL SUMMARY**

MODEL	R	$\mathbf{R}^2$	ADJUSTED R <sup>2</sup>	SE
1	0.25	0.06	0.05	23.84

#### RESULT

Table-25: presents the stepwise regression to estimate the causal impact of pre dominant variable over the consequent variable Climate Change Perception (Y1).

It has been evinced that the variable **Education**  $(X_1)$  has recorded the dominant and discernible impact on Climate change perception (CCP). Education is not only an accusation of knowledge but also an addition to the ecological sensitivity where in the entity of human kind is networked with other component of the ecosystem that is why the variable education has been retained at the last step to mark its dominant presence in the set of the interaction.

## TABLE 26: REGRESSION ANALYSIS (STEPWISE): YCP (Y2) Vs ELEVEN CAUSAL VARIABLES

VARIABLES	<b>B VALUE</b>	t VALUE
X <sub>11</sub> (LOCATION OF THE	-0.72	-3.24
MARKET)		

#### **MODEL SUMMARY**

MODEL	R	$\mathbf{R}^2$	ADJUSTED R <sup>2</sup>	SE
1	0.38	0.14	0.13	19.35

### RESULTS

Table-26: presents the stepwise regression to estimate the causal impact of pre dominant variable over the consequent variable Yield Change Perception (Y2).

Yield change perception (YCP) is basically an experiential learning earned by a rural people who are more exposed to a rural market and get on collecting ground truth data by observing the decline or increase of market landing of certain fish or vegetable species for e.g. over the period.

Rural markets are the dynamics of a "social museum" which can display the visibility as well as the availability of different fish, vegetable, fodder species etc and help generate an understanding whether these species of economic property, nutritional values, and ecological values are declining by count and volume over the period.

#### MODEL 19: CAUSAL VARIABLES RETAINED AND THEIR EFFECT ON CCP (Y1) OR CLIMATE CHANGE PERCEPTION



#### MODEL 20: CAUSAL VARIABLES RETAINED AND THEIR EFFECT ON YCP (Y2) OR CLIMATE CHANGE PERCEPTION



## TABLE 27: REGRESSION ANALYSIS (BACKWARD): WBP (Y3) VsELEVEN CAUSAL VARIABLES

VARIABLES	<b>B VALUE</b>	t VALUE
X4 (MEDIA INTERACTION)	0.31	1.20
X6 (CROPPING INTENSITY)	-0.20	-1.77
X7 (TECHNOLOGY SOCIALIZATION STATUS)	0.25	2.02

#### **MODEL SUMMARY**

MODEL	R	$\mathbf{R}^2$	ADJUSTED R <sup>2</sup>	SE
9	0.34	0.11	0.07	24.10

#### RESULTS

Table-27: presents the stepwise regression to estimate the causal impact of pre dominant variable over the consequent variable **Water Bodies Perception (Y3).** 

Over the centuries the human beings and animals are functionally and culturally attuned to the water ecosystem of hills sources of water in hill ecosystem has got immense ecological importance since it supplies water to support life and retains water to maintain lithospheric and biospheric balances.

The three causal variables viz. Media interaction (X4), Cropping intensity (X6) and Technology socialization status (X7) have been retained as to have discernible impacts on WBP. Media interaction helps sensitise the mind of the ecological players in an ecosystem, cropping intensity and water bodies are operationally tuned and ultimately technology socialization status customise these perception on water bodies to build up a technical understanding of water bodies and their behavioural changes as a response to climate change.

## TABLE 28: REGRESSION ANALYSIS (BACKWARD): HPP (Y4) Vs ELEVEN CAUSAL VARIABLES

VARIABLES	<b>B VALUE</b>	t VALUE
X <sub>1</sub> (AGE)	-0.39	-1.06
X7 TECHNOLOGY SOCIALIZATION STATUS)	0.12	1.09
X10 (ANIMAL HEALTH MENTORING	0.29	1.59
X <sub>11</sub> (LOCATION OF THE MARKET)	-0.32	-1.28

#### **MODEL SUMMARY**

MODEL	R	$\mathbf{R}^2$	ADJUSTED R <sup>2</sup>	SE
8	0.29	0.084	0.024	21.69

#### RESULTS

Table-28: presents the stepwise regression to estimate the causal impact of pre dominant variable over the consequent variable Health Problem Perception (Y4).

The four variables Age  $(X_1)$ , Technology socialization status (X7), Animal health mentoring (X10), location of the market  $(X_{11})$  have recorded discernible impact on HPP (Y4).

Age old people are not that healthy as they use to be 20 yrs back, children are turning more vulnerable to respiratory trouble, problem of stomach and other neuro somatic problems. This all would add to build up a perception that climate change has taken the health issues with a wrong note, and then it is to infer that age has got an experiential learning on climate change through their increasing disposability to different health hazards.

TSS (X7) has rightly been evinced as one of the good estimator of Climate change perception (CCP). Whenever a person is offered to adopt an agricultural technology may be a new variety of seed or a new method of irrigation he is contemplating on whether the proposed innovation world work in a changing climate perspectives.

The other two variables Animal health mentoring (X10) and location of the market (X11) have also entered the causal interactions with a strong note that they can estimate climate change in a better way.





## TABLE 29: REGRESSION ANALYSIS (STEPWISE): SDP (Y5) Vs ELEVEN CAUSAL VARIABLES

VARIABLES	<b>B VALUE</b>	t VALUE
X <sub>1</sub> (LOCATION OF THE MARKET)	-0.40	-2.07

#### **MODEL SUMMARY**

MODEL	R	$\mathbf{R}^2$	ADJUSTED R <sup>2</sup>	SE
1	0.25	0.06	0.05	17.05

#### RESULTS

Table-29: presents the stepwise regression to estimate the causal impact of pre dominant variable over the consequent variable Species Decline Perception (Y5).

The causal variable here retained at the last step is Location of the market  $(X_{11})$  to estimate Species decline perception (SDP).

The vicinity to a market helps perceiving that the market landing of species of fruits, vegetable, flowers, grains etc are declining or increasing or ultimately, this will lead to infer that the location of the market  $(X_{11})$  is basically a causal predictors on as to why there are species declines in a hill ecosystem.

## TABLE 30: REGRESSION ANALYSIS (STEPWISE): PIC (Y6) Vs ELEVEN CAUSAL VARIABLES

VARIABLES	B VALUE	t VALUE
X7 (TECHNOLOGY SOCIALIZATION STATUS)	-0.12	-2.14
X8 (FAMILY INCOME)	0.00	4.57

#### **MODEL SUMMARY**

MODEL	R	$\mathbf{R}^2$	ADJUSTED R <sup>2</sup>	SE
2	0.56	0.31	0.29	11.51

## RESULT

Table-30: presents the stepwise regression to estimate the causal impact of pre dominant variable over the consequent variable Perception Indicator Change (Y6).

It is evinced from the table that the variables, having predominant impacts on **Perception indicator change** (**PIC**), have been **Family income** (**X8**) and **Technology socialization status** (**X7**).

A faster technology socialization process leading to it a higher Technology socialization status (TSS), steers the respondents undergo a polymorphic exposure to a score of environmental stimuli as well as ecological ingredients, especially for a human being thriving in a hill ecosystem, which itself, is fine tuned to its life process.

The family income (X8), too, entails the scopes and elasticity to respond and react in any ecosystem to a score of stimuli income promotes and fosters special movement and accusation of Geo-social knowledge.

## MODEL 23: CAUSAL VARIABLES RETAINED AND THEIR EFFECT ON SDP (Y5) OR CLIMATE CHANGE PERCEPTION





#### TABLE 31: REGRESSION ANALYSIS (BACKWARD): LP (Y7) Vs ELEVEN CAUSAL VARIABLES

VARIABLES	<b>B VALUE</b>	t VALUE
X2 ( EDUCATION)	1.40	1.94
X4 (MEDIA INTERACTION)	-0.24	-1.05
X5 (PER CAPITA HOLDING SIZE)	0.25	1.42
X7 TECHNOLOGY SOCIALIZATION STATUS)	0.25	2.28
X10 (ANIMAL HEALTH MENTORING	-0.24	-1.43
X <sub>11</sub> (LOCATION OF THE MARKET)	0.31	1.20

#### **MODEL SUMMARY**

MODEL	R	$\mathbf{R}^2$	ADJUSTED R <sup>2</sup>	SE
6	0.41	0.17	0.09	20.88

#### RESULT

Table-31: presents the stepwise regression to estimate the causal impact of pre dominant variable over the consequent variable Landslide Perception (Y7).

In this case the variable **Landslide perception (LP)** has been predominantly impacted by a plethora of causal factors viz. **X2**, **X3**, **X4**, **X7**, **X10**, **X**<sub>11</sub>.

Education (X2), as have already been discussed, is the methodical accusation of knowledge through a socialization process and any socialization process involves both ecological pursuits as well as social wisdom.

The other variable **Media interaction (X4)** has also gone screened out as to be a dominant factor which helps perceive the propensity and probability of landslides. The variable **Technology socialization status (X7)**, **Animal health mentoring (X10), Location of the market (X**<sub>11</sub>) have also instrumented as well as orchestrated the perception on landslides.

Landslides a geomorphological process, sometimes triggered by anthropogenic factors, rightly merits a reciprocal perception through a causal factors like TSS (X7), AHM (X10), Location of the market (X11) as well.



The left side variables are retained after allowing the trivial one to be drifted out of the score.

## TABLE 32: REGRESSION ANALYSIS (BACKWARD): DP (Y8) Vs ELEVEN CAUSAL VARIABLES

VARIABLES	<b>B VALUE</b>	t VALUE
X6 (CROPPING INTENSITY)	-0.06	-2.12
X10 (ANIMAL HEALTH MENTORING	0.11	2.11
X <sub>11</sub> (LOCATION OF THE MARKET)	0.33	1.01

## **MODEL SUMMARY**

MODEL	R	$\mathbf{R}^2$	ADJUSTED R <sup>2</sup>	SE
3	0.59	0.35	0.32	6.18

## RESULT

Table-32: presents the stepwise regression to estimate the causal impact of pre dominant variable over the consequent variable Distance Perception (Y8).

The table elicits that the causal variables Location of the market  $(X_{11})$ , cropping intensity (X6) and Animal health mentoring (X10) have got dominant impact on Distance perception (DP).

Logically the variable Location of the market  $(X_{11})$  has elicited a significant impact on overall Distance Perception (Y8) it proves that  $X_{11}$  has got a functional as well as a perceptual impact on overall CCP.

Cropping Intensity (X6) is a physical indicator of any farming system in any ecological set up helps understands, perceive and generate an overall Geo-spatial perception of Climate change the reason is that the higher the Cropping intensity, the more would be the marketable surplus and economic disposibility of farm product and all these will lead to a DP over Climate change.

AHM (X10) involves location of the grazing field and the water bodies. Thus migration animals and their health mentoring to ultimately customize the DP over Climate change.

The withdrawal of the indigenous grasses vegetation and location of water bodies can be so critical as to mentor animal health, simply because, animal mentoring in hill ecosystem is close to nature by default.

## TABLE 33: REGRESSION ANALYSIS (BACKWARD): CCCP (Y) Vs ELEVEN CAUSAL VARIABLES

VARIABLES	<b>B VALUE</b>	t VALUE
X2 (EDUCATION)	0.59	2.92

## **MODEL SUMMARY**

MODEL	R	$\mathbf{R}^2$	ADJUSTED R <sup>2</sup>	SE
1	0.34	0.12	0.10	6.20

## RESULT

Table-33: presents the stepwise regression to estimate the causal impact of pre dominant variable over the consequent variable Comprehensive Climate Change Perception (Y).

Education (X2), formal, informal or traditional, whatever may it be helps perceive and analyse the surroundings and the set up in which a man has thrown into, survives, excels or gives in. Here in this education has been retained as a solitary but very important factor to characterize Comprehensive climate change perception (CCCP).

A CCCP has become resultant to the interactions amongst and between the 8 dependent variable viz. Y1-Y8. This has incorporated the perception about whether the climate is really changing or the health problems of animals are increasing.

The bio-diversity aspects have also been covered including landslides occurrence and local indicators for climate change. These all simmers the need for responses in the form of cognitive learning, motor learning and perceptual learning and ultimately to be integrated and reticulated called CCCP (Y).

So, Education (X2) here has worked as the synergistic character and as well as an integrated process to ultimately build up a canopy of CCCP.

# MODEL 26: CAUSAL VARIABLES RETAINED AND THEIR EFFECT ON DP (Y8) OR CLIMATE CHANGE PERCEPTION





## MODEL-27: CAUSAL VARIABLES RETAINED AND THEIR EFFECT ON CCCP (Y) OR COMPREHENSIVE CLIMATE CHANGE PERCEPTION

MODEL 28: CONTRIBUTION OF CAUSAL FACTORS (X) TOWARDS PREDICTING BEHAVIOUR OF CONSEQUENT VARIABLE (Y)



The Empirical Studies



The Hiearchy of R2 values help the solitary and constelled variables explain variance in consequent variables (Y)

TABLE 34: FACTOR ANALYSIS: STRATEGIC CONGLOMERATION OF
VARIABLES INTO FACTOR

FACTO R	VARIABLES FACTOR LOADING		% OF VARIA NCE	CUMUL ATIVE %	FACTOR RENAMING
1	EDUCATION (X2) FAMILY SIZE (X3) CROPPING INTENSITY (X6)	(-0.67) (0.68) (0.77)	11.28	11.28	FARM CAPACITY
2	YIELD CHANGE PERCEPTION (Y2,X13) WATER BODIES PERCEPTION (Y3,X14) HEALTH PROBLEM PERCEPTION (Y4,X15)	(0.59) (0.84) (0.79)	11.27	22.55	HEALTH ECOSYSTEM

3	LOCATION OF THE MARKET (X11) SPECIES DECLINE PERCEPTION (Y5,X16) DISTANCE PERCEPTION (Y8,X19)	(0.69) (-0.59) (0.83)	10.46	33.01	GEO-DIVERSITY
4	AGE (X1) MEDIA INTERACTION (X4) EXPENDITURE AFTER HEALTH (X9) ANIMAL HEALTH MENTORING (X10)	(0.70) (0.48) (0.79) (0.64)	10.18	43.19	MEDIA COMPLEX
5	TECHNOLOGY SOCIALIZATION STATUS (X7) FAMILY INCOME (X8) PERCEPTION INDICATOR CHANGE (Y6,X17)	(-0.58) (0.60) (0.81)	8.87	52.06	SOCIALIZATION DYNAMICS
6	PER CAPITA HOLDING SIZE (X5) CLIMATE CHANGE PERCEPTION (Y1,X12)	(-0.79) (0.53)	7.29	59.35	RESOURCE BASED CLIMATE CHANGE PERCEPTION
7	LANDSLIDE PERCEPTION (Y7,X18)	(0.87)	6.79	66.13	LANDSLIDE PERCEPTION

## RESULT

The Table-34: presents the principal component analysis for identifying operational factors that have put up through an intrinsic relational conglomeration of the variables to ultimately form a homogenous group of variables called factors.

It has been found that factor-1 has accommodated the following variables: **X2**, **X3**, **X6** within a common bracket and has been renamed as **Farm capacity**.

It has been found that factor-2 has accommodated the following variables: **X13**, **X14**, **X15** within a common bracket and has been renamed as **Health ecosystem**.

It has been found that factor-3 has accommodated the following variables: X11, X16, X19 within a common bracket and has been renamed as Geological diversity.

It has been found that factor-4 has accommodated the following variables: **X1**, **X4**, **X9**, **X10** within a common bracket and has been renamed as **Media complex**.

It has been found that factor-5 has accommodated the following variables: **X7**, **X8**, **X17** within a common bracket and has been renamed as **Socialization dynamics**.

It has been found that factor-6 has accommodated the following variables: **X5**, **X12** within a common bracket and has been renamed as **Resource based climate change perception.** 

It has been found that factor-7 has accommodated the following variable: **X18** within a common bracket and has been renamed as **Landslide perception**.



X2= Education X3= FAMILY SIZE X6= CROPPING INTENSITY









## TABLE 35: CANONICAL COVARIATES: INTERACTIONAL SELECTIVITYBETWEEN '+X' SET AND '+Y' SET OF VARIABLES:

LEFT SIDE VARIABLE	RIGHT SIDE VARIABLE
Y1 (CLIMATE CHANGE PERCEPTION) + 0.062	X <sub>1</sub> (AGE) +0.829
Y2 (YIELD CHANGE PERCEPTION) +0.471	X2 (EDUCATION) +0.361
Y6(PERCEPTION INDICATOR CHANGE) +0.024	X7 (TECHNOLOGY SOCIALIZATION STATUS)
	+0.015
	X <sub>11</sub> (LOCATION OF THE MARKET) +0.274

Table 35: depicted that with the change of the left side variables viz. Y1, Y2, Y6. The following variables viz.  $X_1$ , X2, X3, X7,  $X_{11}$  from the right side set of predictors are being impacted. This will provide both strategic and operational support for handling with different set of variables. Within a domain of interaction and variability behaviour of the total scope of variables.

## TABLE 36: CANONICAL COVARIATES: INTERACTIONAL SELECTIVITY BETWEEN '-X' SET AND '-Y' SET OF VARIABLES:

LEFT SIDE VARIABLES	RIGHT SIDE VARIABLES
Y3 (WATER BODIES PERCEPTION) -0.387	X4 (MEDIA INTERACTION) -0.070
Y4 (HEALTH PROBLEM PERCEPTION) -0.278	X5 (PER CAPITA HOLDING SIZE) -0.192
Y5 (SPECIES DECLINE PERCEPTION) -0.750	X6 (CROPPING INTENSITY) -0.488
Y7 (LANDSLIDE PERCEPTION) -0.311	X8 (FAMILY INCOME) -0.284
	X9 (EXPENDITURE AFTER HEALTH) -0.003
	X10 (ANIMAL HEALTH MENTORING) -0.173

Table 36: depicted that with the change of the left side variables viz. Y3, Y4, Y5,Y7. The following variables VIZ. X4, X5, X6, X8, X9, X10 from the right side set of predictors are being impacted. This will provide both strategic and operational support for handling with different set of variables. Within a domain of interaction and variability behaviour of the total scope of variables.



## CANONICAL SELECTIVITY AND CHOICE BETWEEN : Y1, Y2, Y6, Vs X1-X11 VARIABLE

## CANONICAL SELECTIVITY AND CHOICE BETWEEN: Y3, Y4, Y5, Y7 Vs X1-X11 VARIABLE



Canonical coefficient for covariates study has been designed to isolate and accomodate the critical variables from both sets of left and right side sets of variables. It helps go with a clear choice for isolating one or few predictants from a set of predictants to hook up or catch up with some few from the right side variables or set of predictors. They have been branded with covariates, reason being they are varying isochronously from either left or right side set of variables to establish, a strategy, of interaction, what may be called canonical covariates.