

Village Dynamics in South Asia

Background

The voices of the poor are generally muted and do not resonate in agricultural statistics and in policy decision making because reliable and timely data are not available on consequences of change on the rural poor. Decisions made on incomplete information may be quantitatively accurate, but in terms of the dynamics of the changes, they are fuzzy, anecdotal and fragmented.

Reducing poverty is a dynamic process that is driven by individuals, families, firms and institutions within a changing technological, institutional, socio-economic and policy environment. The understanding of village-level information and ground realities can act as an important catalyst in accelerating development. It provides a working knowledge of the rural economy, which can point to ways in which the development of rural livelihood pathways can be achieved at a quicker pace.

Village Level Studies (VLS)

To provide the most efficient way to understand the farming systems in rural areas, and to identify the socioeconomic constraints faced by the farming community in the semi-arid tropics (SAT), the Economics Program of the International Crops Research Institute for the Semi-Arid

Tropics (ICRISAT) initiated Village Level Studies (VLS) in 1975 at six villages in SAT India. In the early 1980s, such studies were also undertaken in six villages of Burkina Faso and four villages in Niger in West Africa.

The World Bank recognized the ICRISAT VLS dataset as an "International Public Good" and the "goose laying golden eggs", while others consider it as "Gene Bank of Social Scientists" and "One of the Jewels of ICRISAT". The VLS has been cited for its significance in providing valuable insights on rural development pathways in meeting the global development challenges.

ICRISAT's longitudinal VLS have proved to be one of the most valuable contributions of the CGIAR to the knowledge base on rural household economies. The village studies provide important insights about changing household and village livelihoods, and help scientists identify and understand socio-economic, agro-biological, and institutional constraints to agricultural development in the SAT. The most beneficial and transferable element of the longitudinal study approach is the continuity provided in maintaining benchmark on-farm research sites and in sustaining interactions with farmers. VLS are one of the most efficient ways to understand farming systems in rural areas and to identify the socio-economic and institutional constraints faced by the farming community.



Village Dynamics Studies (VDS)

In 2009, ICRISAT, teaming up with the Bill & Melinda Gates Foundation (BMGF), engaged stakeholders worldwide in Village Dynamics Studies (VDS) to understand the dynamics of rural poverty. With a \$9.95m funding from BMGF, ICRISAT launched the project

Tracking change in rural poverty in village and household economies in South Asia, shortly titled *Village Dynamics in South Asia* to understand the dynamics of rural poverty. This five year project, effective 1 May 2009, aims at helping to break the cycle of hunger and poverty through better informed decisions that will enrich efforts to improve the plight of smallholder farmers in sub-Saharan Africa and South Asia.

Aim and Objectives

The project aims to decrease the incidence and severity of absolute poverty in South Asia's semi-arid and humid tropics by markedly increasing the availability of time-series district, household, individual, and field-level data. Thus the project seeks to improve the quantity and quality of time-series meso and micro-data so that decision-making is based on evidence of impacts on the poor.

The specific objectives are:

1. Enhance the availability of reliable household-, individual-, and field-specific, high-frequency, time-series data in purposively selected villages in the semi-arid and humid tropics of South Asia;

2. Increase the availability of updated and expanded meso-level (eg, district-level) agricultural data in India and Bangladesh
3. Nurture policy analysis and strengthen capacity building to fully exploit the data collected and assembled in objectives 1 and 2.

The three objectives are being achieved through the following activities:

- ▶ The gathering of longitudinal data on households, individuals, and fields in 42 selected villages in years 1-5 of the project;
- ▶ The assembly of secondary agricultural meso-level data into an integrated base that is updated in time, expanded in coverage, extended in geographic area, and decentralized in level of aggregation;
- ▶ The timely analysis of the data gathered and assembled in objectives 1 and 2, complemented by the conduct of workshops on time-series and panel data collection and analysis, the implementation of a small competitive grants program to support special purpose studies by regional social and agro-biological scientists in the study villages, the dissemination of policy briefs, and the holding of an annual conference on Village Dynamics in South Asia.

Uniqueness

Two aspects of this project make it unique in the developing world. Firstly, it brings a long-term, multi-generational perspective to agricultural, social and economic change, and secondly, it provides an extraordinary level of detailed



VDSA Project – Partners

ICRISAT	International Crops Research Institute for the Semi-Arid Tropics, Andhra Pradesh, India
NCAP	National Centre for Agricultural Economics and Policy Research, New Delhi, India
IRRI	International Rice Research Institute, Manila, Philippines

and carefully collected information on farming activities and household economy. The two together will forge a unique learning tool that will tremendously enhance developmental support with a high investment-success ratio in the marginalized regions of South Asia.

Moreover, the project will magnetize the best and brightest in the social sciences globally to conduct research on the most impoverished regions of the developing world and establish longitudinal panel data, which will further serve as an example for other national programs in developing countries.

Having the opportunity that the village dynamics study approach affords to periodically revisit the same households and villages over cropping seasons and years is an exciting prospect and a fertile environment for the generation of ideas in the drylands.

Characteristic features of ICRISAT longitudinal studies

- ▶ Their time series nature with a set of comprehensive panel data on a large number of households;
- ▶ A village focus;
- ▶ The incorporation of agro-biological observations, measurements, and experiments from the outset that are both interdisciplinary and multidisciplinary;
- ▶ Inclusion of a sample of landless as well as landholder farmer respondents;
- ▶ Careful and purposive selection of villages representing different agroclimatic regions; and
- ▶ Timely analysis of accumulated data.

Historical Perspective

First generation VLS: 1975–1984

ICRISAT's Economics Program initiated VLS at six locations in Andhra Pradesh and Maharashtra states of India in May 1975. The villages covered under VLS include two villages of Mahabubnagar



district in Andhra Pradesh, two villages each from Solapur and Akola districts of Maharashtra; two villages in Sabarkantha district of Gujarat; and two villages in Raisen district of Madhya Pradesh. While the panel data are built for the six villages in Andhra Pradesh and Maharashtra for the period 1975–84, the baseline information is available for the villages in Gujarat and Madhya Pradesh for the four-year period 1980–84. The VLS data have been collected at regular intervals since mid-1975 on socio-economic characteristics from 240 households. Data collection of this initial phase ended in 1985.

The early 1980s also saw the expansion of the studies to two other SAT regions of peninsular India in partnership with state agricultural universities. In mid-1985, the VLS formally closed in response to budgetary pressure but, more importantly, because 10 years was viewed as sufficient time for an international agricultural research institute to invest in this activity.

Second generation VLS: 2001 – to the present

With limited core support and fragile special project funding, the VLS were re-opened in 2002 in the initial six villages, at first with low frequency rounds and since 2005–06 with higher frequency interviews. Surveys were conducted in 1989, 1993, 2000 and 2001 to find out these sweeping changes, which added new information

VDSA Project – Collaborators

SAT India

UASD	University of Agricultural Sciences, Dharwad, Karnataka
JAU	Junagadh Agricultural University, Junagadh, Gujarat
PDKV	Dr Punjabrao Deshmukh Krishi Vidyapeeth, Akola, Maharashtra
JNKVV	Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur, Madhya Pradesh
CRIDA	Central Research Institute for Dryland Agriculture, Hyderabad, Andhra Pradesh

to the existing panel data. In recognition of the profound economic and social changes that have affected the SAT over the past decade, the research team at ICRISAT, in partnership with national research programs and other leading institutes worldwide, resumed VLS in Asia in 2001. Following the resumption of the VLS in the villages, fresh censuses of all households were conducted with a large sample proportional to the number of households. In addition to the earlier traditional modules figuring in the first generation VLS, new modules were also included in these surveys. The sample was extended to about 600 households to include all the split-offs from the original households residing in the village. The second generation VLS provides an effective tool for identifying major changes in SAT village economy, particularly for developing priorities for research and policy.

Impacts of VLS

ICRISAT's VLS is one of the first major panel surveys using a household framework in a developing country, and have been used extensively to analyze agricultural decision making and technological change. The following are some of the impacts of the VLS studies.

- ▶ Over 150 research papers and 40 plus doctoral dissertations were based on empirical analysis of VLS data in the semi-arid tropics of India and West Africa. A recent search in Google scholar shows that this body of work has generated over 10,000 citations.
- ▶ Recommendations that influenced a government decision not to hand over wastelands to private industry for afforestation.

- ▶ Findings on seasonality and covariate risk, which limit the scope of credit societies and chit funds to finance agricultural investment in the SAT, had an effect on rural credit policy.
- ▶ Government of India's recognition of the need for more flexible lending policies for dryland agriculture.
- ▶ Studies on crop yield insurance in India influencing the design of crop insurance programs.
- ▶ Instrumental in documenting the importance of common property resources in the incomes and nutrition of the poor.
- ▶ Program components for biofuel and fodder production developed.
- ▶ Development components incorporated in relief works in India, especially minor irrigation and water harvesting structures.

Target Domain

Primary, Household and Village Level Time-Series Data

The household data is collected using the following schedules: Household Census Schedule (HCS), General Endowment Schedule (GES), Plot Schedule (D), Employment Schedule (K), Transaction Schedule (L), Monthly Price Schedule (M), Daily Rainfall (R), Cultivation Schedule (Y) and Livestock Schedule (Z). These schedules cover almost all dimensions of rural life including resource endowments, farm and non-farm activities, employment, transactions, gender, climate, government welfare programs, and the like. The HCS is exercised on the entire



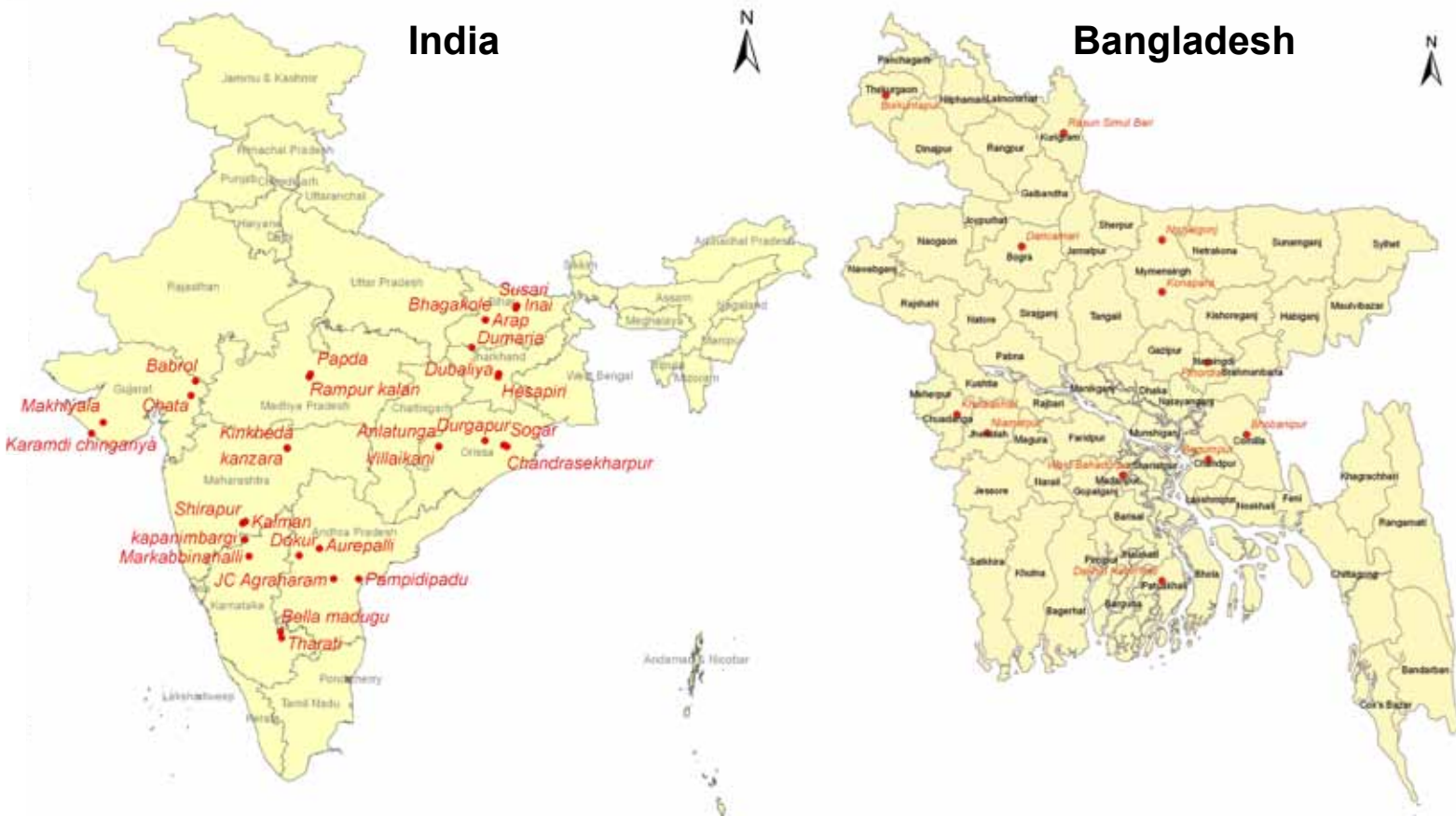
VDSA Project – Collaborators East India

ICAR-RCER	Indian Council of Agricultural Research – Research Complex for Eastern Region, Patna, Bihar
DWM	Directorate of Water Management, Bhubaneswar, Orissa

Bangladesh

SocioConsult	SocioConsult Ltd, Dhaka
CPD	Centre for Policy Dialogue, Dhaka

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population once at the beginning of the survey, while GES is used once in a year for the selected sample households. All the remaining schedules are used for high-frequency (monthly) rounds on the sample households.

Based on relevant variables, the following States, Districts, Villages and Households have been selected for project implementation (Table 1)

Similar to the original VLS, village selection is purposive and based on modal criteria (complemented by visits to many villages) from the analysis of taluka-level (sub-district) information. Respondent households are randomly chosen from strata based on a village census listing in each selected village.

Following the selection of respondents, the design of the data collection and processing blends methods that have worked well in the past with potential improvements, some of which are

being experimented with and others incorporated at the beginning of the studies. Several of the substantive and methods-related changes include the following:

- ▶ Testing of field-based data entry and Computer-Assisted Personal Interviews (CAPI);
- ▶ Geo-referencing of plots;
- ▶ Appointment of women investigators to interview family members on topics related to nutrition, health, and gender in each of the selected villages;
- ▶ Coverage of two near heterogeneous villages with a slightly reduced sample size by one resident investigator per village;
- ▶ Recruitment of qualified resident field investigators;
- ▶ Inclusion in the sample of respondents households that do not rely primarily on agriculture;

Research Team

Project Director: MCS Bantilan

Objective 1:

- * SAT India: VR Kiresur
- * East India: Anjani Kumar
- * Bangladesh: Samarendu Mohanty
Thelma Paris
Humnath Bhandari

Objective 2:

- * P Parthasarathy Rao

Objective 3:

- * Uttam Deb

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Table 1. Locations and households selected for project implementation.

Country/Region	State	District	Villages	No. of Households
SAT India	Andhra Pradesh	Mahbubnagar	Aurepalle, Dokur	70, 50
		Prakasam	JC Agraharam, Pamidipadu	40, 40
	Maharashtra	Akola	Kanzara, Kinkheda	62, 52
		Solapur	Kalman, Shirapur	61, 89
	Karnataka	Bijapur	Kapanimbargi, Markabbinahalli	40, 40
		Tumkur	Belladamadugu, Tharati Ajjihalli	40, 40
	Gujarat	Junagadh	Karamdi Chingariya, Makhiyala	40, 40
		Panch Mahals	Babrol, Chata	40, 40
	Madhya Pradesh	Raisen	Papda, Rampura Kalan	40, 40
	East India	Bihar	Patna	Arap, Bhagakole
Darbhanga			Inai, Susari	40, 40
Orissa		Dhenkanal	Sogar, Chandrasekharpur	40, 40
		Bolangir	Anlatunga, Villaikani	40, 40
Jharkhand		Ranchi	Dubaliya, Hesapiri	40, 40
		Dumka	Dumariya, Durgapur	40, 40
Bangladesh		Thakurgaon	Boikunthapur	40
		Kurigram	Rasun Shimul Bari	40
		Bogra	Dharikamari	40
		Chuadanga	Khudiakhali	40
		Jhenaidah	Niamatpur	40
		Patuakhali	Dakkhin Kabir Kathi	40
		Madaripur	Paschim Bahadurpur	40
		Narsingdi	Patordia	40
		Mymensingh	Konapara, Nishaiganj	40, 40
		Comilla	Bhabanipur	40
	Chandpur	Begumpur	40	
			Total	1824

- ▶ Explicit testing of periodicity in core data collection;
- ▶ Use of diaries to enhance reliability of recall information; and
- ▶ Investment in small-scale diagnostic research methods that compare oral estimates of respondents to field measurements and evaluate the determinants of systematic differences between household consumption expenditure and household income.

Meso or District Level Data

The assembly and integration of meso-level time-series data at state and district level focuses on core variables that include crop area, production, land use, irrigation, farm harvest prices, monthly rainfall, fertilizer consumption, agricultural wages, livestock numbers and products, mechanization, and infrastructure. The database will be further strengthened with additional variables that will include poverty numbers, per capita GDP, sectoral shifts, soft infrastructure variables

related to health and education and weather-related information.

The database for India presently covers 512 districts from 19 states for the core variables between 1966 and 2000. Since 1966, 207 new districts were carved out from existing districts. To maintain continuity in the database for time series analysis the data for the newly formed districts have been apportioned back to their parent districts ie, districts existing in 1966. Besides time series analysis, the database allows spatial and temporal analysis using GIS digitized maps. Under the VDSA project the geographic coverage of the database has been expanded to include Bangladesh. In Bangladesh, such data are being assembled at the district and sub-district (*upazilla*) level.

Todate, the database for India has been used extensively by international and national organizations and agricultural universities. Research areas addressed using the database include construction of crop-livestock typology, analysis of factors influencing diversification

Advisory Panel

Hans P Binswanger

Mahabub Hossain

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Representatives from ICRISAT, IRRI and NCAP

Funding Support

Bill and Melinda Gates Foundation (BMGF), Seattle, USA

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of agriculture and technology adoption, supply response, trends in area and production of major crops, crop-livestock linkages, etc.

Data Analysis and Capacity Building

The activities in this multi-purpose objective include:

- ▶ The strengthening of in-house institutional analytical capacity to conduct analysis on the micro- and meso-data,
- ▶ The establishment of a small-grants facility to support special-purpose studies by regional researchers in South Asia,
- ▶ The dissemination of research results and publications, and
- ▶ Capacity building in panel data collection and in time-series data analysis for social scientists in South Asia.

This project can assist in answering several of the most pressing questions: Agriculture as an engine for growth, the positive association between economic growth and poverty alleviation, the impact of technology on poverty reduction, the impact of climate change, nutritional status and income, social network architecture through village registries, the economic, social, and cultural impacts of women's Self-Help Groups, the determinants of effectiveness in local governance, and changes in natural vegetation and soil quality.

Gender: The project incorporates gender-related dimensions in addition to the labor participation of women. The role of women in decision making

in agricultural production, consumption, nutrition, education, etc, access to and control of resources, participation in and access to social networks and the accretion of social capital and empowerment are some of the most important issues that are being researched in the project. Gender differences are also considered in the development of suitable methods and instruments for collection of gender-disaggregated data, and the analysis and documentation and impact of various programs on women in terms of nutrition and food security, welfare, and empowerment. One of the outcomes from the project (gender-disaggregated information) is to influence policy makers by providing them information on the nutritional status, especially of vulnerable household members, more especially young children, below the age of 5, and mothers. This information can be used for specifically targeting women for some of the rural enterprise development activities addressing women's needs and strengthening women's capacities.

Competitive Research Grants

The implementation of a small grants fund to support special-purpose agro-biological and socio-economic inquiries in the village-level micro-studies is one of the responsibilities of the Management Committee. These grants will be awarded in years 2-4 of the project and are open to regional agro-biological and social scientists interested in the conduct of research in the villages. The grants will be used to fund operating expenses but not salaries. Brief proposals will be evaluated by the Management Committee.



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Endorsements and quotes on VLS dataset

- ▶ “The Goose laying Golden Eggs” - *Hans Binswanger*, World Bank
- ▶ “I have used many data sets over 30 years of career. The VLS approach has the tremendous advantage of collecting a wide variety of data about a small number of households and showing the flow of variables measured relative to each other over time. I have not seen any comparable datasets” - *Christopher L Delgado*
- ▶ “The unique feature of VLS is its long panel” - *Marcel Fafchamps*, Oxford University.
- ▶ “These are the only data sets in the world with which it is possible to study in depth impact of seasonal and annual variations in agricultural output and labor demand on human behavior, contractual choices and production relations. Social mobility is a major income distribution issue, which is poorly understood partly because data, which allow a study of social mobility of households have been in scarce supply. Very little is known about the life-cycle evolution of earnings: how relationships to factors of production, eg, land-ownership and family arrangements change with age for people from different socio-economic groups. The ICRISAT data are uniquely suited to study these issues because of their extensive longitudinal information on income, production and family relations” - *Hans Binswanger*
- ▶ “The detailed information collected by VLS is better than any other data sets I have used” - *Emmanuel Skoufias*, IFPRI
- ▶ “The ICRISAT data set has been one of the most valuable public resources. While larger data sets are available (such as NSS in India), none possess the advantages that ICRISAT’s detailed panel data provide. There are strong grounds, therefore, for the revival of ICRISAT’s Village-level Studies. The beauty of ICRISAT data has been that it allows us to construct a large number of relevant regressors – a time series dimension.”
“The other data sets I have used are no match for VLS. No comparison is necessary” - *Sunil Kanwar*, Assistant Professor, Delhi School of Economics.
- ▶ “A very desirable feature of the VLS data is that they provide data on long-term trends” - *Dunstan Spencer*
- ▶ “ICRISAT-VLS combined the features of what is commonly referred to as the “Quick and Clean” – Techniques of Rapid Rural Appraisal (RRA) with the “Long and Clean” – methods involving in-depth study of a more limited sample” - *RP Singh*
- ▶ “We have lots of surveys at IFPRI, but like most they are largely cross-sectional or only capture a short time span; VLS is long in time frame” - *Peter Hazell*, IFPRI
- ▶ This project will combine the rich historical database with ICRISAT’s unmatched expertise in running long-term surveys in the semi-arid tropics in the context of an innovative program of new field research. One of the main contributions of renewed VLS is the ability to evaluate the way new technologies fit into the entire farming system. The contribution of the earlier panel provided analytical power to address some of these issues that simply will not be available anywhere else in the world - *Chris Udry*

About ICRISAT



The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that does innovative agricultural research and capacity building for sustainable development with a wide array of partners across the globe. ICRISAT’s mission is to help empower 600 million poor people to overcome hunger, poverty and a degraded environment in the dry tropics through better agriculture. ICRISAT is supported by the Consultative Group on International Agricultural Research (CGIAR).

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