

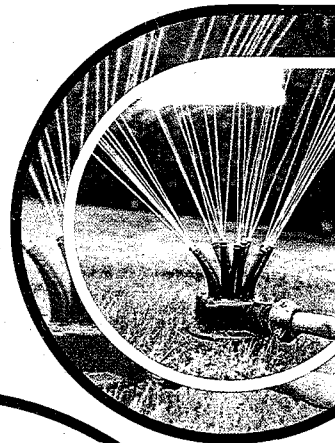
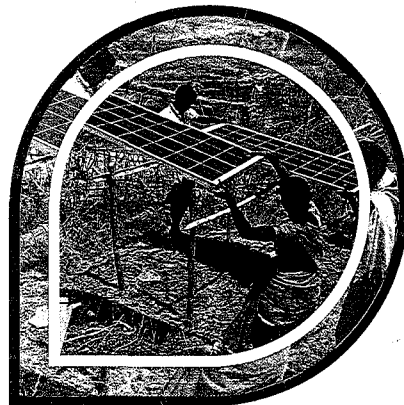
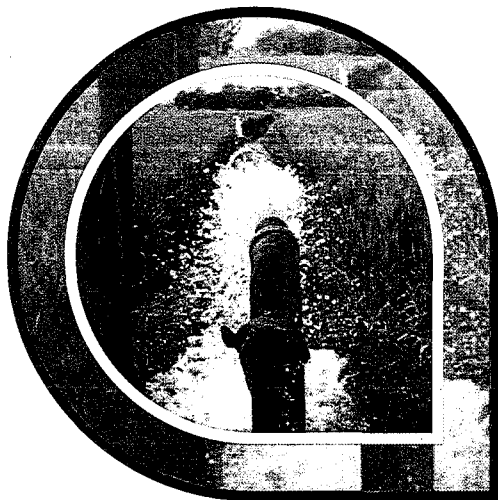


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Workshop on CSR for Agricultural Development

November 19-20, 2018

**Venue: National Institute of Agricultural
Extension Management (MANAGE),
Hyderabad.**



*Reading
Material*

Workshop on CSR for Agricultural Development

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Compiled by

Mr. Satender Rana
Prof. N. N. Sharma
Dr. N. Balasubramani
Mr. A. Vincent



**National Institute of Agricultural
Extension Management (MANAGE)**

(An Organization of Ministry of Agriculture and
Farmers Welfare, Govt. of India)
Rajendranagar, Hyderabad – 500 030,
Telangana State, India
www.manage.gov.in

**Birla Institute of Management
Technology BIMTECH**

Knowledge Park II
Greater Noida (NCR) - 201 306
Uttar Pradesh, India
www.bimtech.ac.in



The social and Environmental Value of CSR Investments in Agriculture Including the Approach and Value of Science Backed Solutions
Joanna Kane-Potaka¹, Suhas Wani² and Lakshmi R Pillai³

¹International Crops Research Institute for the Semi-Arid Tropics,

²Former Director IDC, International Crops Research Institute for the Semi-Arid Tropics, and

³Lakshmi R Pillai, International Crops Research Institute for the Semi-Arid Tropics, Hyderabad.

Abstract

CSR investments on agriculture are significantly under-represented. Yet these investments are key to ensuring food security, overcoming hunger and protecting the environment. Rural communities also have the highest levels of poverty and malnutrition. Bringing prosperity and sustainability to rural areas hinges on making agriculture profitable. Improved livelihoods in rural areas have shown to lead to increased spending on education and health care, connecting agricultural development with a more holistic solution.

The approach to agricultural development needs to be community driven, tackling initially the community's top priorities and identifying the low hanging fruit to achieve early impacts. These efforts will build trust in the community which can then be built on with more interventions across the whole agriculture value chain. Interventions need to be science-backed. In developing these solutions, sustainable models that are market-driven and valued are important. Cross cutting to the whole approach is the inclusiveness, engaging the required partners, communications and the monitoring and evaluation.

Introduction

Health & Sanitation and education dominate in CSR spend. A recent KPMG survey showed that these two sectors accounted for approximately 56% of the CSR spending in India in 2017. The highest spend was in Education at 33% followed by health & sanitation at 22%. Significantly less was the environment at 11% and spend for rural development at 12%.ⁱ Even public spending on agriculture globally has been decreasing as a proportion of overall public spend.ⁱⁱ Yet rural areas have the largest proportions of poverty and malnutrition. These are also the areas to focus on to



protect the environment. Water scarcity is well recognized as a major global issue and often referenced as the potential cause for the next war after oil.ⁱⁱⁱ Agriculture is the largest user of water at over 70%, yet a quick Google analysis of international organizations focused on water, showed that about 80% of these organizations focus on drinking water and sanitation. Agriculture seems significantly under represented and under recognized for how it can be at the heart of change in overcoming poverty, hunger, malnutrition and environmental degradation. The following sections provide some detail on how CSR investments in agriculture can bring prosperity and social change across many sectors. The necessary components and approach to CSR investments in agriculture are then covered presenting a model for success along with examples of how a science-backed approach is core to this.

Why invest in agriculture for your CSR activities

The World Bank states that agriculture is the basis of development and economic growth and the precursor to further development. However, it notes that agriculture has been “vastly underutilized for development”.^{iv} The reasons and advantages of CSR investment in agriculture and rural development are listed here.

➤ *To Reduce Poverty*

ROI to overcome poverty is greater with agriculture development

If you want to reduce poverty, then investment in agricultural development has the highest ROI. In-depth research by many credible organizations have proven this to be the case.

A UK government report notes that, “Cross-country regression analyses have concluded that the *poverty reduction from growth in agriculture is on average 2 to 4 times greater than from equivalent growth in other sectors.*”^v They also note that this is still going to vary by individual context and quality of the interventions. In general the correlation is strongest amongst the poorest and in resource poor, low-income countries. Both the World Bank and UN-IFAD report that studies have shown that *GDP growth generated by agriculture is at least twice as effective in reducing poverty as growth generated by other sectors.*^{vi} A detailed World Bank econometric



analysis notes that “agricultural growth is more effective in reducing poverty holds true in lower and higher income countries, though the comparative advantage of agriculture in reducing poverty declines as countries become richer.”^{vii}

The greatest poverty is in rural areas

About 1 billion of the 1.4 billion of the extremely poor people live in rural areas. The majority of these poor people depend on farming for food and livelihood.^{viii} In India, 80% of the poor people live in the rural areas.^{ix} The average farm size is reducing now with 85% of the farms in India being 2ha or less.^x With these levels of poverty and the extremely small farm sizes of the majority of people, rural development needs specialized attention or poverty can worsen.

The trend of supplementing incomes with non-agricultural activities is also increasing due to the difficulty of sustaining a livelihood based on agriculture. Tackling the issue needs both agricultural development as well as development of other rural livelihoods.

➤ To help prevent Urban Problems and Social Issues

Migration and overcrowding in urban areas and the stress on urban infrastructure are in part, consequence of poor rural incomes and opportunities. One solution has to be to make farming profitable. This will not only help bring rural communities out of poverty but will affect all of us as the food they produce is what we buy. It contributes to the state and country's GDP, it will keep prices and markets stable and growing. If food security of India suffers this increases food prices and imports. This only creates a larger poverty divide between those than can afford higher prices and those that can't. Making agriculture profitable can prevent farmer suicides and social unrest.

➤ To Ensure Food Security, Nutrition, Health and being able to afford Education

Rural incomes link with education and health care. We have seen in our own projects that when the farmers' incomes improve, the first priority for expenditure is education – sending their children school. The second expenditure is on medical needs and thirdly it is reinvested into the farming business. *Agriculture is part of the solution to overcoming malnutrition which is higher in rural areas.* The 2011 Indian national census estimates “the population of children below 6 years at 158.8 million. Nearly 40 % of these children are undernourished that is more than 63 million



children are suffering from malnutrition. Nutritional problems are substantial in every State in India.”^{xi} A previous health survey segmented rural and urban malnutrition showing significantly more malnutrition in rural areas - children < 5 years had high malnutrition in all three main measurements used for malnutrition: stunting (40% urban vs 50% rural), wasting (17% urban vs 21% rural) and underweight (33% urban vs 46% rural). Also segmenting anemia levels, representative of low iron levels, indicated anemia was more prevalent in rural areas (71.5% compared to 63% in urban areas).^{xii} Malnutrition, also called hidden hunger, continues to be a major issue across India as a whole and higher in the rural areas where poverty is higher. The two are linked and solutions involving agriculture can influence both pulling people out of poverty as well as influencing the nutritional levels and diversity of food.

➤ *To Protect the Environment and Cope with Climate Change*

Investing in agriculture not only provides livelihoods to bring people out of poverty but solutions can also include the protection and sustainable use of the environmental resources.

Approximately 1.9 billion ha of land gets degraded every year and a shockingly 24 billion tons of top soil is lost annually.^{xiii} It takes hundreds of years to rebuild just 1 mm of soil. The world has already lost 20% of its top soil.^{xiv} About one-third of India’s total land area is affected by land degradation^{xv}. In States like Gujarat and Rajasthan 87% of the land is degraded^{xvi}. In Africa almost three-fourths of the soils are degraded.^{xvii} In India, nearly 70% of all land is characterized as “drylands”^{xviii} and just over half of all ‘arable’ land is drylands. Drylands are more vulnerable to climate change impacts. Where these lands are degraded it has major negative ramifications for poverty. Climate change will provide hotter climates and more extreme weather conditions, droughts and floods – both which will cause further land degradation. Water is another resource under extreme pressure for both quantities needed and the quality. India has 4% of the global fresh water resources and yet 17% of the global population. About 70% of the fresh water resources are used by agriculture.^{xix} In India, development of factories is mainly in the rural areas with 75 per cent of all new factories set up in the last decade being in rural areas.^{xx} Industry competes with agriculture for water. Since agriculture has high water usage, investing in

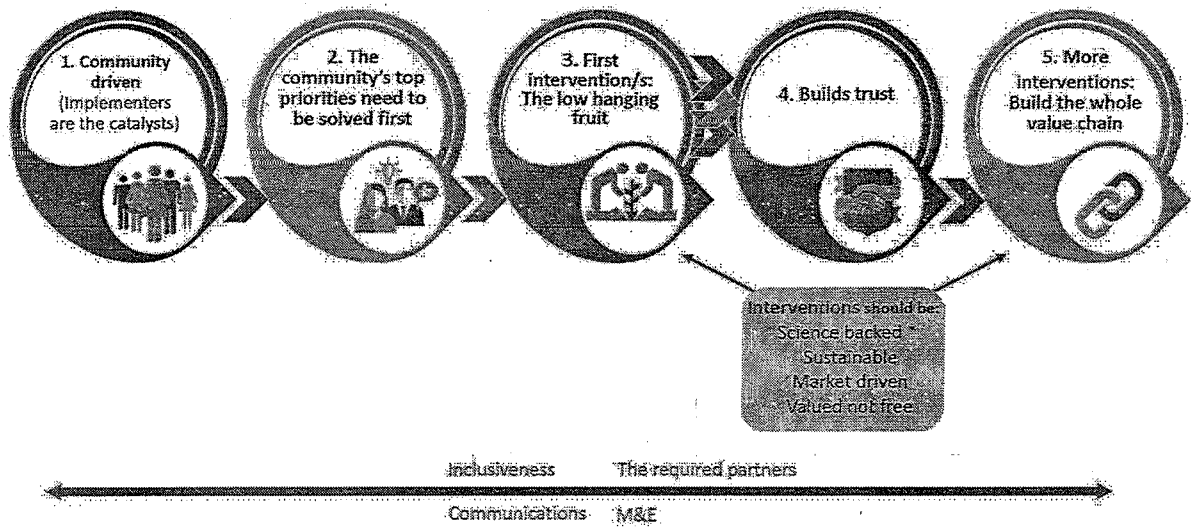


efficiency gains in agriculture water usage can have greater impact on water availability. As a result, companies wanting to become water neutral need to have joint solutions that satisfy and build efficiencies for both the agriculture and industrial needs. So solutions that engage agriculture can have a significant impact overcoming water scarcity, coping with the changes from climate change and preventing environmental degradation. In conclusion, to help overcome poverty, hunger, malnutrition and social problems in rural areas as well as the spillover effects on urban areas, in addition to education and health needs in rural areas – investing in agricultural development will provide a comparatively higher return on overcoming poverty, and tackle many other issues in the process.

The overall approach for agricultural development

This section will provide reasoning and examples on why and how to undertake science-backed development. However, this will only be effective when implemented with the right approach and with the critical components in place. In undertaking agricultural development, critical components for success have been identified from the experience and case studies of the International Crops Research Institute for the Semi-Arid Tropics (ICRISAT). These are compiled from the work of ICRISAT with many decades of on-the-ground experience in implementing programs. Resources for the compilation included village visits, reviews of project reports and interviews with CSR companies partnering with ICRISAT, inputs from the former staff and Director of the ICRISAT Development Center, Dr Suhas Wani. Diagram A and the following description identifies the components and key steps undertaken for successful agricultural development for CSR in a specified geographic area.

Diagram A: The approach to successful agricultural development for CSR in a geographic area



The key steps and components for successful agricultural development

1. *Initiatives should be community driven:* Trials over time at ICRISAT have shown clearly that for sustainability, the community must take the lead role. The community must feel empowered and be driving the process, selecting the priorities and interventions and overseeing the implementations. To achieve this, existing community committees are worked with. If needed new committees are set up. Typically watershed management initiatives have required such committees to be set up. Implementers and companies should be the catalysts to bring the resources and specialized knowledge to empower the community to lead change.
2. *The community's top priorities need to be solved first:* Experience has also shown that although a CSR investment may have its own priorities these should not override the community priorities. Listen to the community and engage first in their priorities. This is not only respectful to the community but will lead to better impacts when the community recognizes your genuine approach to help and also allows them to be able to later focus on the other priorities.
3. *Work first on the solutions that are the low hanging fruit:* Once priorities are determined, select the solutions to work on first that are the low hanging fruit. This is important to be able to achieve some early impact and also build trust so that more members of the community take on the



4. Interventions. For agricultural development this may often be the need for water management. In the Kothapaly watershed in Medak district in Telangana state of India, it was actually a wilt-tolerant higher yielding Pigeonpea that was identified by scientists as the low hanging fruit. Pigeonpea production increased to 900kg/ha as opposed to the previous 200 kg/ha. This success led to more farmers engaging in the program.

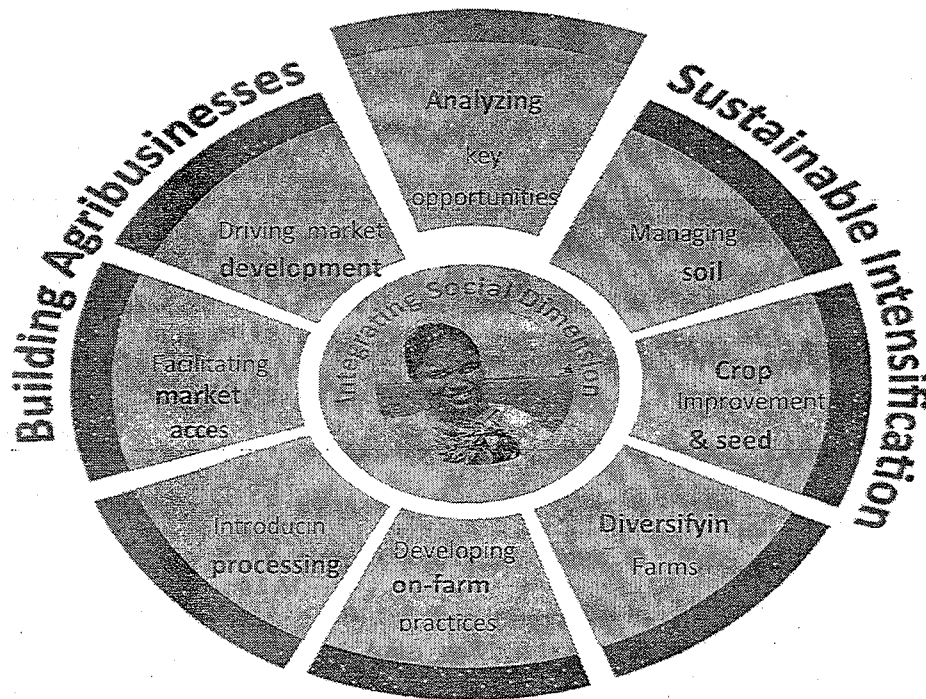


Diagram B: The agricultural value chain (Source: ICRISAT)

5. *Build trust*: This is critical for any action and sustainability. This can be built by – ensuring the initiative is community driven, listening to the community and recognizing their priorities, and delivering quick impacts through prioritizing efforts on the low hanging fruit.

More interventions – build the whole value chain: Investment in any one intervention will not deliver the full potential impact without the whole value chain being developed. This holistic approach in agricultural development includes working through the whole agricultural value chain from: natural resources management; improved varieties; seed systems; diversity on farm; on-farm practices and technologies; processing options, facilitating market access for the farmer; and driving market development. See Diagram B for the components of the agriculture value chain.

The interventions

The interventions, i.e. the solutions designed typically should take the following into account:

- *Science backed solutions* to ensure the best and most context appropriate solutions are selected. This requires understanding the consequences biophysically and socially.
- *Sustainable model*: All interventions should be developed as part of models that allow for eventual sustainability. Often initial investment may be needed to kick start the concept and get buy in or to overcome a market failure. But the long-term intent should be that the intervention will eventually not be needed or will be self-sustaining.
- *Market driven*: This is a move away from technology or production driven approaches. It ensures that solutions are driven by demand and farmers are linked to markets. Farming is a business too. At ICRISAT we call this - Market Oriented Development.
- *Valued - not free*: Providing resources for free puts a low value on the resource. Few direct inputs to commercial activities are free. Where farmers cannot afford the inputs, credit schemes are sources or creative solutions like providing seeds with the plan to return after harvest 110% of the seed quantity supplied. This is important not only to have the community value the input but to ensure the efforts and interventions are really wanted.

Crosscutting components

A few components important to include, cut across all the steps and need to be integrated into the whole process. These include:

- *Inclusiveness*: It has been a core value for ICRISAT to be inclusive in any approach. Inclusiveness incorporates being inclusive of all people especially those typically more socially disadvantaged, for example the women.
- There is a spectrum of engagement that ranges from soliciting inputs, to engaging in



the activities through to driving and being leaders in the process. This far end of the spectrum is best for success and sustainability – empowering the community to be leading the selection and implementation of solutions.

To be inclusive of women, means ensuring the women are engaged, not just for their inputs but are also empowered to lead the selection and implementation of their own solutions.

This is undertaken not just to be fair but to be able to capitalize on all the resources available – bringing in all the ideas, intellect, and hands to contribute.

- *Communications*: Specific attention needs to be given to the communications across the whole approach. The communications should be thought through and a plan developed – who is to be communicated with, what channels and tools will be used for these communications, methods to assure the communications are truly two-way, what recognition is required of the different parties as well as what external communications are required.
- *The required partners*: In projects ICRISAT has been involved with, ICRISAT has taken a catalyst role and scientific knowledge provider. NGOs have been engaged to be on the ground and keeping clear two-way communication and feedback channels and other assistance as needed. Government representatives are important to be engaged to ensure the required schemes can be accessed and appropriate support given. Required partners should be selected not only by the technical contributions needed but also by the approach to be adopted. This is why identifying required partners is considered crosscutting and not associated only with the intervention.
- *Monitoring and Evaluation (M&E)*: It is widely recognized that M&E should be included to ensure objectives and impacts are being achieved. It is recommended that the M&E is across the whole process and not just a specific intervention. This will identify issues earlier and test the longer term sustainability as it will also monitor e.g. the trust and inclusiveness.

Why 'science-backed' agricultural development is critical for your CSR

This section will be described through a range of specific examples from case studies implemented by ICRISAT, of how science-backed solutions were used and made a difference.

Hydrological analysis to provide safe and sustainable drinking water



Although not directly agricultural development, providing drinking water in rural areas should draw on the skills of scientists to identify the ground water supply that stays recharged for the majority of the year and is not contaminated with toxins from surrounding farming and industrial activities. I wonder how many drinking water bore wells and pumps are provided without this analysis.

Hydrology, modelling and monitoring for watershed management

Watershed management is a popular CSR investment in rural areas. This is not a case of e.g. refurbishing tanks which is a technology driven approach. Such infrastructure projects do not look at the long-term sustainability which requires communities to take ownership of the tanks and learn how to maintain them. Also often more water availability results in more water usage without the knowledge of how to be more efficient with the water usage to maximize the benefits. Water use efficiency on farms requires scientific input and training. Watershed development requires a hydrological study of the area before interventions can be designed, understanding the groundwater, water flow, weather monitoring and rainfall levels at different times of the year etc. Without this understanding and modeling of the location, optimal watershed structures cannot be recommended. Also how these structures are managed needs the science-backed approaches. For example, a check dam can be used to stop the water flow during periods of heavy rain and allow the water to recharge the ground water. With the right monitoring of the ground water, it can be determined when the ground water is recharged and the remainder of the water in the check dams can be used for irrigation. Without this monitoring of the groundwater recharge, there could be serious problems of water scarcity during the non-rainy season. This requires science-back development and engagement of the community to undertake the monitoring, as well as capacity enhancement of the community.

Plant and soil nutrient analysis for soil management

Not only is it important to prevent land degradation, but to also understand plant and soil nutrition needs and levels. Fertilizers are typically over used, influenced partly by the heavy fertilizer subsidies for many decades as well as fertilizer recommendations based on broad large area analysis. This has degraded soils and even led to decreasing crop yields.^{xxi} Soil analysis is required to determine customized fertilizer requirements including micronutrient deficiencies. With these, communities can be guided on responsible fertilizer usage and appropriate cropping patterns.



Selection of climate-smart crop varieties, diversity on farm, cropping patterns and intercropping

These activities are essential to increase the productivity on farm, but require specialized knowledge to select the appropriate variety for the specific agroecology, understand the water and soil stresses from the different combinations of cropping, etc.

Weather monitoring and modeling to adapt to weather changes and in the longer term to climate change

Given concerns over climate change, scientific-backed development is also needed to select the most appropriate times and crops to plant as well as water management approaches. Simple equipment can be used and communities educated on the weather data collection as well as analysis and decision making based on the information. More complex modeling can also be applied and information disseminated to farmers for better decision making.

Environmental science to ensure safe wastewater reuse

This is another intervention based on some recent scientific studies^{xxii} which have also been applied in a few CSR projects in India. To both make domestic wastewater safe to use on farm and contribute to reducing water scarcity, artificial wetlands are set up with especially selected plant species and gravel and sand layered filters. This has led to the *chemical oxygen demand in wastewaters being reduced by 30-92% and crop yields increased 14 to 40% when irrigated with the treated wastewater as compared to fresh water.*^{xxiii}

Methods to produce and use vermicomposting

Vermicomposting is where agriculture residues and domestic organic waste are converted into value-added nutrient-rich compost using earthworms or recycling nutrients.^{xxiv} Specific methods have been developed to produce vermicomposting and the appropriate usage. Microenterprises, especially with many of the women's groups, have also been developed in many of the CSR projects ICRISAT has implemented. This required capacity building on the techniques to produce and sell vermicomposting.

In conclusion these examples of typical interventions in agriculture development show the need for having a science-backed approach with the required expertise to ensure appropriate implementation. These interventions, both the approach as well as the



agricultural technologies, have been researched over decades with successful case studies across continents.^{xxv}

Investing CSR in agriculture can tackle the biggest issues from poverty, hunger, malnutrition, environmental degradation and climate change. There are also spillover effects for the urban areas and education and health.

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