India as a fully developed nation by 2047

Industrialisation, skill and know-how creation in rural India

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Background

Zoho Corp largest software product company from India, with 11,000 employees

I moved to a small village in Tenkasi district in 2019 and I have made it my home

Thanks to government policy, digital broadband connectivity has arrived at every village, and rural roads are getting better

I believe we can spark a rural transformation, economic, cultural, spiritual and civilisational

As of 100 years ago, an Indian village had a self-reliant local and regional economy

We had an ecosystem of farmers, oil makers, weavers, potters, masons, carpenters, iron-smiths, gold-smiths and vaidyas

The descendants of those rural craftsmen have become landless labour or urban migrants

The underlying assumption that drives mainstream economic theory is that villages will continue to decline and urbanization is vital for prosperity

I believe technology trends along with digital and physical infrastructure investments can help __reverse __ decline of rural areas

Principle of Economic Balance

Our rural citizens do have demand for motorcycles, smartphones, refrigerators, medicines and a wide variety of advanced manufactured goods

How do they pay for those manufactured goods?

A) By selling agricultural products

B) By selling their land

C) By becoming migrant labour to cities in India or abroad

D) By getting into debt

Value of agricultural production alone is insufficient to pay for all the manufactured goods rural citizens want and need

All other choices B, C and D lead to decline of rural areas

Rural revival is about creating <u>balance</u> through production of manufactured goods in rural areas

District Driven Development Model

What is our most pressing economic issue?

Employment for our vast youth population, particularly our rural youth

Employment arises from demand for goods and services

We have wants and needs but we lack the <u>know-how and capability</u> to fulfill them

Challenges of higher education

We have a vast network of colleges and universities and many in rural areas

Yet, there is little or no industrial development in many of the regions those colleges are located

Our universities have become "vacuum cleaners" of talent, they suck the talent from rural areas and deliver to big cities in India or abroad

Many students languish without job opportunities, even as industry complains about lack of talent

What is not the solution?

Our problem is <u>not</u> that our universities are bad

Universities in Japan or Germany or Korea or China are similar to us

Japan and China still worry about rote learning and debate about how to nurture creative thinking among their students

That has not prevented Japan or China from creating world-class industry

What sets us apart is not the quality of our universities but the <u>lack of sufficient industrial base</u>

Even when we have factories, we do not have the technological know-how on how to build the machines and production processes

Making a humble product like a nail clipper requires high quality steel and non-trival machinery that involves know-how

What is the solution?

Industrial development and academic development happen together

Necessity creates the invention

Our universities will only become world-class when our industry becomes world-class

Focus on extensive skill development suited to local industry ...

... while enabling the industry to think bigger in terms of longer term R&D

Our experience at Zoho Schools of Learning

We take students from very humble backgrounds, mostly Tamil medium students, after 10 + 2 or 10 + 3 (polytechnics)

We cast a very wide net: 13,000 applied and we selected 125, and the vast majority are children of parents who have not gone to college

Many of our students come with little or no prior computer exposure

We pay them a monthly stipend (now at ₹10,000 a month) and we provide food

They start with very small projects ("learn to operate the computer", "set up a website", "write email" ...) and progress to more and more complex projects

We use a combination of mostly Tamil with a mix of English words in our classrooms, whatever works to get across the information

Students learn by doing

Taught by teachers who learn and master the subject matter and then teach

There are no examinations and no grades, the faculty assess students' progress daily and provide additional help when required

Students work on both <u>individual</u> projects and <u>work in groups</u>, to teach team work

Within 1 year, they are able to join a team as trainees

They become regular employees of the company 18 to 24 months after joining the program (most of them are only 19!)

About 90-95% of the students complete the program

When a student completes the program but is not placed in Zoho, we provide them additional training, so our teams are able to absorb them

We have about 5 students per faculty member, so as to provide personalized attention

No exams, no mandatory attendance, no fees, stipend throughout

Learn + do + teach (teachers actually learn, build-test-debug-repair, and then teach)

Students learn and teach juniors

Maker space, tinkering labs

No prescribed syllabus set in stone (constantly morphing to reflect market trends and industry needs)

Virtual buddy system connecting every student with an employee for cultural learning and emotional support

Various schools catering to each component needed in software development (tech, design, sales/marketing/support)

Various schools catering to various age groups (zoho schools, zs for graduate studies, marupadi for women)

Now in our 17th year

Over 1300 of our employees have come from this program

Lessons

Advanced skills and know-how are very context-specific

You are most motivated to learn when there is a clear <u>need</u> to learn and "someday this might be useful" is not sufficient motivation for most students

Most students only pay attention only when education is <u>relevant</u> to their needs (and for most that need is "will I get a job")

Education is best imparted in an <u>experiential</u> manner

Education should be in the mother-tongue Tamil and English words can be liberally used to convey technical subjects

Rural students find pure English medium a big barrier and we must remove that barrier

Even countries with small population (Finland 5.5 million, Sweden 10 million ...) use their own languages for all higher education

To eliminate information barriers, we ask all our students and employees to address everyone (including me) by name

Contextual, relevant, experiential: the philosophy of Zoho Schools of Learning

Key take-away

Please work closely with local industry, nurturing talent, doing joint projects

Allow students to use Tamil with a mix of English words

Start with small projects that replicate known technology and then move up the ladder to new R&D

India imports nail clippers from China and South Korea

At first, we may need to import the machines that make nail clippers and later we will figure out those machines

From those humble beginnings, we climb the ladder towards technological and R&D sophistication

Within 25 years, we can be at the forefront of science and technology and a global super-power

Vision 2047

Thank you