

SUNWay Innovation

Bharatpur, Nepal

Business Plan

SUNWay Research and Innovation Center
SRIC
Estd. 2075
Bharatpur- 11, Chitwan

1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS
SUSTAINABLE DEVELOPMENT GOALS

ONE WORLD Citizens for SDGs with No One Left Behind

ONE WORLD Citizens (OWC)

- connects youngsters in the international online OWC community
- and facilitate them to become Living Legends, who work out ideas for change into start-ups,
- with support of a basic training program
- and help and of a network of partners.
- To contribute to achievement of the 17 SDGs with No One Left Behind in 2030 all together.

With focus on these SDGS



Because from 2012 we see from our own experience

- that we can create Quality Eduation about ICT, Technology, Food, Water, Renewable Energy by & for youngsters
- by which they come up with low tech innovation and start-ups for implementation
- that deliver new jobs for young people and basic needs for everyone in their community,
- By working this way and as Global Partners we can ensure that **No One is Left Behind** in a smart, cheap way!



Sustainlabe change by the Living Legends concept, designed by youngsters themselves



#WeGrowTogether

Global Change from the Power of Youngsters & Living Legends

To contribute to Global Change the network of youngsters developed the Living Legends concept in 2014-2018.

Living Legends are youngsters who share ideas and first work out their ideas for change into social start-ups including revenue model and implementation in their communities. By doing this they become a living example for others.

After this, Living Legends help youngsters from other community, cities, countries by online training and coaching to copy and implement their example start-up in the communities.

By doing this Living Legends see themselves contibuting to global change as youngest generations in an accessible, affordable way.



Making WORK of Basic Needs by a common training program that is given by & for youngsters

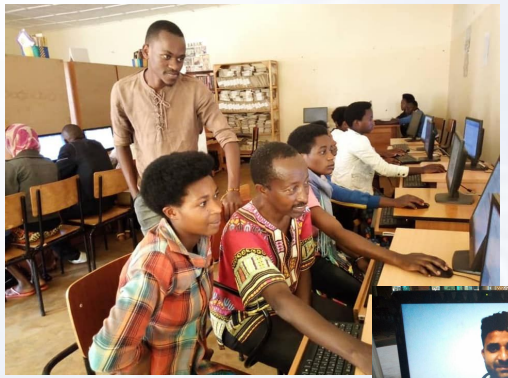
The basic program that OWC offers to youngsters creates Living Legends from all kind of countries and backgrounds, because it provides basic skills that many young people need today.
The program is about: ICT Basic training, Education on Low-tech innovation and Empowerment & Social Entrepreneurship training. The power of collaboration in the online community does the rest! If you want to read more about it, please visit our website

Nepal: ICT & Technology
WORK of Agriculture Innovation





Rwanda: ICT & ICT Entrepreneurship





Kenya: ICT & WORK of Water







SUNWay Research & Innovation Centre (SRIC) Nepal

The SUNWay Research and Innovation Center (SRIC) is the social enterprise for the research and innovation on diverse field including ICT, Education, Agriculture, Renewable Energy, Climate Change along with Science and Technology (low-technology) in Nepal and worldwide which directly or indirectly plays the vital role in the development of nation.

Vision: To create a better future for the Nepalese society and in the future for other societies in the world with the use of low-tech innovations.

Mission: To provide innovative , quality and sustainable ICT solutions and services to enrich local community. —-to improve living conditions of people.

Unique location: At the home and land of Pradeep Sapkota, **Expert in ICT and Low-Technology and farmer himself**!









Towards Agriculture Innovation using Low – Tech

SRIC believes in Agticulture innovation in communities by Low-Tech Innovation. In 12/8/2019 SRIC made a simple low-tech tool by using damaged bike and iron plate with the help of blacksmith to plant potatoes. For more detail please visit this YouTube link ↓↓







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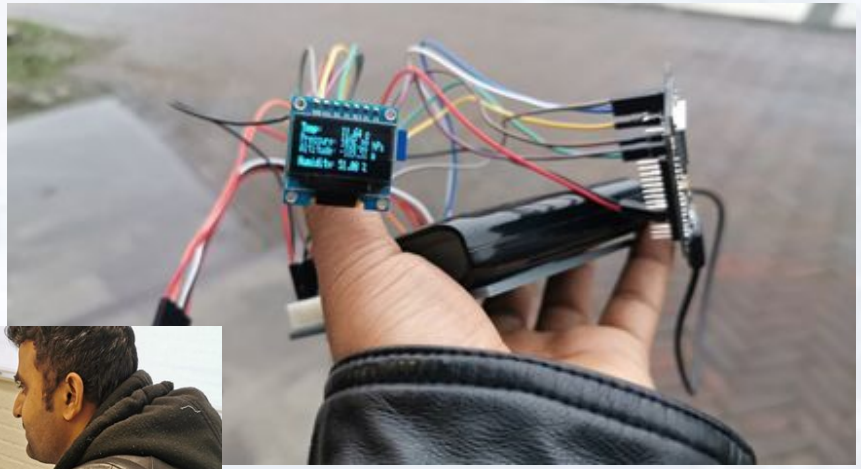
Exchange of ideas, expertise & learning by doing

In January - February 2020 the SRIC Team was in the Netherlands to work on IOT (Internet of Things) projects , 3D Printer , Drone, sensors and automatic irrigation for Agriculture Purpose . During that time we made a Weather station as a prototype for agriculture use.







Pradeep: Living Legend

Management Summary **SUNWay Innovation**

The project aims to strengthening the role of youth in agriculture, technology and entrepreneurship in Nepal. Currently young Nepalese leave Nepal for India, Golf Countries, Australia, Europe. They do not see perspective in technology and jobs in Nepal. This project supports Pradeep Sapkota and his Sunway Research & Innovation Center (SRIC) to becoming - in cooperation with ONE WORLD Citizes - 'an Innovation Space on Agriculture & Technology' for farmers, students and young technology professionals.





Technology & Farming

We build a new generation of youth and farmers, with technology and digitalization as connector. SRIC is the innovation platform, where youngsters learn and develop technology for agriculture (drones, greenhouses, renewable energy, machinery, internet applications for advice on farming practices), working together in an online global community. European technology and agriculture partners support building and operating SRIC.

Within three years the project builds a market-driven pipeline of technology for agriculture in Nepal, steered and managed by youngsters, in close cooperation with the next generation of farmers.



Management Summary **SUNWay Innovation**

SRIC as innovator and broker

SRIC sees a need for machinery and practical apps on farming practices.
SRIC will act as a pivoting point between farmers and their local, regional or national markets (through off takers and /or large clients), who have an interest to invest in a more efficient and effective farming approach. The result is more crop/ha, better quality and
lower costs/crop unit. Agro/food value chain actors like off takers and suppliers of seed, fertilizer, (environmental friendly) pesticides and lease-equipment will benefit from the SRIC efforts and are willing to partner with SRIC, if not invest in SRIC.
SRIC develops, manufactures and resells machinery to farmers. Depending on price or needed adjustment SRIC makes or buys. SRIC pitches successful technology interventions to farmers and cooperatives, in order to scale.
SRIC is the place where farmers and technology professionals conveniently work together.

An attractive pipeline for farmers

SRIC builds up a pipeline of products and services in 'farming & technology'. Criteria for these products and services are: appropriate, calculable, affordable, practical, scalable. SRIC identifies the technology providers, products and services; SRIC adjusts technology where needed to the Nepalese context and farmers. SRIC tests and facilitates the innovations, and defines business interventions and calculates the business case. This determines the attractiveness for farmers. SRIC has testing areas inside the building (software and hardware), and agriculture land around the building for technical trials with for example seed, inputs, greenhouse and drones.



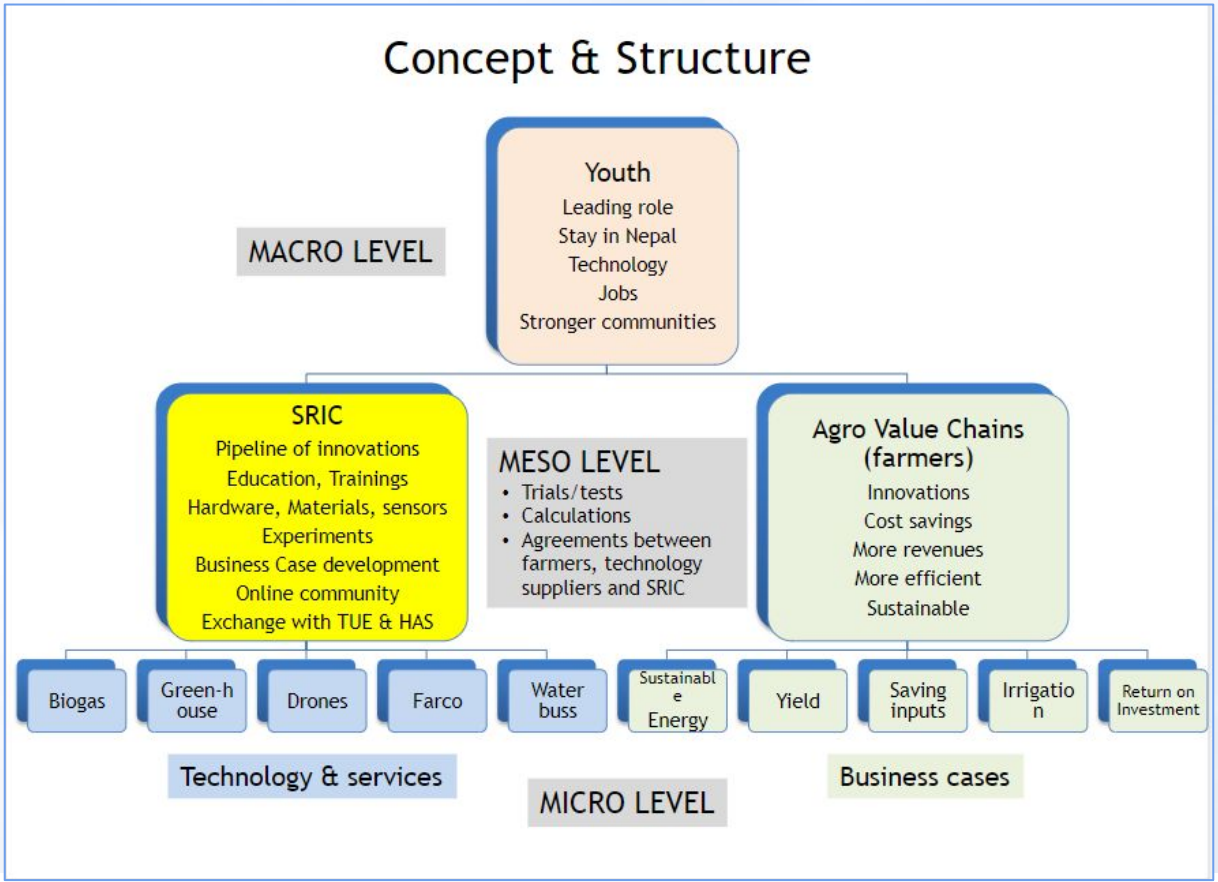
Management Summary **SUNWay Innovation**

Make agro-technology measurable
The business interventions and the related financial calculations are key for farmers, other value chain actors and technology professionals. The basic question is: 'Does a technology intervention create value for the farmer: more revenues, cost savings, reduction of post-harvest losses'. It means that we need proof, figures, and validated trials. The business case is 'the engine' to make the merge of technology and agriculture working.
Innovative farmers have a major role in these trials. They are the first movers and can test new products and services at their farm and – in cooperation with SRIC – at SRIC's premises (lab, workshop, land). They can validate the business case with ratios like Return on Investment, cash flow analysis, extra revenues and reduction of post-harvest losses.

Three-level intervention
SRIC started as a training centre providing ICT trainings and IOT workshops. SRIC wants t expand providing low tech equipment and IT instruments to farmers. SRIC plays a pivotal role at three levels:
At macro level youth – technical and farmer - can innovate traditional agriculture on par with students and advanced farmers in India or Europe. The brain drain stops.
At meso level, SRIC fuels agro value chains with advanced, climate smart, sustainable technology, machinery, and IT applications; creating business cases and investment structures for the value chain actors to scale yield and income. SRIC is well-connected to technology companies.
And at micro level farmers and technology suppliers implement technology and farming practices, which result in business for technology suppliers (e.g. machinery, IT-apps), better farming (higher yield), and income increase for farmer families.
The picture on the next slide illustrates the three-level approach.



The three-level approach



PPPCanvas SUNWay Innovation

Business Ecosystem: large braindrain and migration of young people, high rate of unemployment, lack of access to affordable (non-)motorized agri-equipment, Nepal import restrictions, lack of access to micro credits for farmers, natural disaster prone area, weak government, weak economic system, traditional farming: all these issues are covered/understood by SRIC in close partnership with local gvt, agricutural office and university

Key Partners: Netherlands: One World Citizens, TUEindhoven, City of Eindhoven, HAS, Wicked Water, Sprout Economics. Europe: Top Research institutes and agro-tech suppliers in (in kind/knowledge support). Nepal: Agriculture Knowledge Center, Agriculture and Forestry University Bharatpur, United Technical Engineering, Other universities and colleges, Innovative & Demo farms. India: SDNx-Space Development Nexus	**Key activities:** phase 1 (year1) purchase of approx 7 types of low tech farming equipment plus IT instruments and devices for demo center training and demo purposes and demo in the field This results in client -market analysis phase 2.(year2) manufacturing/adaptation of equipment to lower the investment costs and start renting out and/or sales of preferred equipment phase 3 (year 3) scaling up manuafcturing/renting and sales activities and securing maintainance and service to rented equipment&tools. During all 3 phases SRIC provides training on ICT, internet applications (weather data, uploaded	**Value proposition:** Nepalese farmers have very limited knowledge and experience on technology and farming. They lack the access and route to modernizing their farming. This results in standstill, and suboptimal production. SRIC bundles the introduction, demonstration, instruction and rent or sales of machines, technical devices and IT-applications. A clear and basic business case illustrates the value creation to farmers. SRIC lets the farmer making the leap from conventional farming to modern/commercial farming. Technology like greenhouses, drip-irrigation, planting machines and simple applications on farming practices gives the farmers more revenues, cost-savings and reduction of post-harvest losses. The farmers are more competitive, and have the entry to attractive agro-food value chains because of better quality and lower costs per unit of product. SRIC builds up a pipeline of technology for farmers, which is scalable to bigger groups of farmers and more technology products and services	**Customer relationship:** website OWC, online platform for youth community, events, workshops, programs for students, webbased seminars, fieldvisits,social media SRIC user &trainees platform, community meetings, website, social media , radio/TV, demonstration events, exhibition	**Customer segments:** 1) young (and old) farmers out of the 30 farmers-community in which SRIC is participating as farmer himself, community members for IT and operator's training en demonstrations, 2) farmers from adjacent commmunities(nearby 600 farmers), 3) students from university , 4) value chain foodsupply with its actors, especially the supliers of resources for farmers 5) manufacturers, mechanics, rental companies, workshops, blacksmiths (SME's), 6) governments, local agricultural authorities, community boards, 7)grantors, donors, DFI's and nexus-oriented investors (food-gender-peace-job's)	**Extended beneficiaries:** community households, women, childeren, youngsters, marketplaces, foodsupply -value chain actors
Partnership governance: OWC and SRIC partner together on fundraising and investments, supporting partners work on project based agreements with in kind manpower support. OWC has a supervising board while SRIC has its own managing director with OWC in an advisory board position. Partners in nepal work on contract basis (gvt, university, local agricultural office)	**Key resources:** CEO OWC & CEO SRIC, plus 1 fte in kind support from partners in Europe plus 1fte in kind support from HAS/TU/e. out of pocket capital from grantors, out of pocket inlay, investment FINTURE under application , grants application under construction (PIN, Agenda4Change, others)		**Channels:** 1) rent out equipment via existing renting enterprises for tractors/machines, 2) blacksmith workshop network, 3) suppliers of seed, fertilizer,agri resources, 4) community gatherings, 5) agricultural offices, 6) university courses and webinars, social media, newspaper		
Cost structures: Capex (100% private capital investment in machinery, equipment and IT tools/devices), OPEX, MainCapex (spares and replacement), HRM, R&D, sales mgt, Comm&PR still integrated within the SRIC structure for both demo&training center as well as rental company. Cost OWC are born by OWC-grantors.		**Impact:** At macro level youth – technical and farmer - can innovate traditional agriculture on par with students and advanced farmers in India or Europe. The brain drain stops. At meso level, SRIC fuels agro value chains with advanced, climate smart, sustainable technology, machinery, and IT applications; creating business cases and investment structures for the value chain actors to scale yield and income. SRIC is well-connected to technology companies. And at micro level farmers and technology suppliers implement technology and farming practices, which result in business for technology suppliers (e.g. machinery, IT-apps), better farming (higher yield), and income increase for farmer families.	**Revenue streams:** revenues from trainings, demonstration events-entry fees, rental fees for equipment&IT devices/hour, and payment for partnering with University in writing the IT4Agriculture module/handbook, subsidy from local gvt, outcome payments from philanthropy based on trade offs for other SDG's (job creation) and value chain actors (suppliers to farmers, off takers from crops from contract farmers)	

Note: OWC is based on community building and in kind support by students represented by a huge number of partners

To read the PPPCanvas, please click on **this link**

Cost overview tools & Services SUNWay Innovation, part 1

										SRIC Estimation for Machinery Tools							
			Expenses (1st year)							Transaction (2nd year)				Transaction (3rd year)			
S.N	Particulars*	Market need*	Make or buy	Qty	Cost € / Unit	Total €	Purpose	Provisioned CAPEX 2nd year		/Hour €	No. of Hr	No. of Farmers*	Total €	/Hour €	No. of Hr	No. of Farmers	Total €
1	Building		Make	1	40000	40000											
2	Seed Planter		Make	2	200	400	Rent			3	4	10	120	3	4	100	1200
3	Wheel hoe		Make	2	250	500	"			3	4	10	120	3	4	100	1200
4	Rice/ Wheat Reaper		Buy	2	1800	3600	"			18	4	10	720	18	4	100	7200
5	Root Washing M		Make	2	600	1200	"			10	4	10	400	10	4	100	4000
6	Dibble Wheel(Veg planter)		Make	2	200	400	"			3	4	10	120	3	4	100	1200
7	Drip Irrigation		Buy	1	600	600	(1 time inst.)									50	30000
8	Rice planting machine		Buy	2	2000	4000	Rent			18	4	10	4000	18	4	100	7200
					Sum	50700					Income		5480		Income		52000
										Transaction			2nd year	Transaction			3rd year
S.N	Particulars			Qty	Cost € / Unit	Total €	Purpose			/Year or Hour €	No. of Hr	No. of Users (farmer or Univ)	Total €	/Year €	No. of Hr	No. of Farmers	Total €
1	Weather Station		Make	2	250	500	1 time Install									100	
2	Software and Website		Make	1	5000	5000	Yearly fee			10		10	100	25		100	2500
3	Drone		Buy	1	1200	1200	Hourly fee			5	1	10	50	10	1	100	1000
4	3D Printer		Buy	2	600	1200	Own use										
5	Electronic equipment		Buy			5000	IOT training										
6	Laptop		Buy	10	500	5000	IT training										
7	Office appliances (desks etc)		Buy	32	800	800											
	Promotion & Marketing tools		Buy			1300											
8	Automated Green H		Make	1	5000		Install	5000				1	5000			10	50000
9	Rapid (hand) scan for the drone		Buy	1	800	800	Hourly fee			5	1	10	50	20	1	100	2000
10	Crop spraying drone (incl chemicals)		Buy	1	3000	3000	Hourly fee			15	1	10	150	15	1	100	1500
11	Manufacturing Equipment & Tools		Buy			3000	Blacksmith	10000									
					Sum	26800		15000			Income		5350		Income		57000
													10830				109000

Cost overview tools & Services SUNWay Innovation, part 2

32	SRIC & Staffing												
33							Year 1	Year 2					
34					Months	€/month	€	€	€				
35		Management costs OWC			12	1000	12000	12000					
36		Defecit OPEX SRIC					8500	0					
37						Sum	20500	12000					
38									125000				
39													
40	Income from ICT Trainings per year (learning mobile, internet, upload info)							Operational costs					
41	S.N	Particulars	Users 1st yr	Users 2nd yr	Per user	Total 1st yr	Total 2nd yr		Year 1	Year 2	Year 3		
42	1	Youngster	20	50	10	200	500		€	€	€		
43	2	Farmer	20	50	10	200	500	Staff SRIC	3600	10800	5400		
44					Income/year	400	1000	Office appliances	300	300	300		
45	IOT Workshop (prototyping, software, devices like drone, weather station)							Raw materials	200	600	1000		
46	S.N	Particulars	Users 1st yr	Users 2nd yr	Per user			Travel costs	1000	500	500		
47	1	Youngster & students	20	50	15	300	750	GWE	500	600	600		
48	2	Technology professionals	20	50	15	300	750	Internet connection	180	180	180		
49					Income/year	600	1500	Tax office (audit etc)	500	500	500		
50	Training on farming equipment							Maintenance	800				
51	S.N	Particulars	Users 1st yr	Users 2nd yr	Per user			Miscellaneous	2500	300	300		
52	1	Farmers	10	60	5	50	300	Total € /year	9580	13780	8780		
53					Income/year	50	300	Total € of 3 year				32140	
54													
55						1050	2800						
56													
57	FOOT NOTES (*)												
58	Particulars = In the first year SRIC will buy 2 units of each machine. Based on market demand and farmer's willingness to pay for amachine SRIC makes or buys from the 2nd year onwards												
59	Market need = based on research in 2019 we see a strong need (green) or upcoming need (yellow)												
60	No of farmers = This means an average. Some farmers might need a rice planting machine or rice reaper, other need a seed planter or drip irrigation. Some need more machines												
61													

To read the whole Excel, please open **this link**

Explanation Cost overview tools & Services SUNWay Innovation

The estimations made in the spreadsheet are based on research and by practical experience of Pradeep as farmer and as ICT Trainings Center done in 2019

Phase 1: Real life market research
invest in setting up the demo &training centre including a building and 2 units per type equipment including some smart low tech equipment and IT supported devices but also training materials (laptops).
In this first phase we will demonstrate the equipment options and IT instruments in 2 or 3 blocks in line with the need from farmers in either seed planting, harvesting or crop optimization. With these tests we can :

- Get a better picture what equipment is favourite,
- What equipment is either for renting or for sale (depending the price and the strength of the farmer and/or cooperative
- What equipment should/could be adapted and manufactured ourselves to lower the investment-unit price.

Phase 2: Renting out equipment and sales

1. We start with the equipment of the demo center
2. If the demand increase we will start producing machines according the build to order principle.

Phase 3: Scaling up the manufacturing, the trainings, the demonstrations, the renting activities and sales. This phase will provide review of the business model and answer the question what can be sourced out to a partner for renting and maintenance or manufacturing.

