

We're delighted to bring you updates on our activities in the field. It has been a glorious year, and the Lord has accomplished much through us. We strive to make ourselves more available, improve our capacities and learn more about how we can help one another in a broken world. Visit our website www.treff-end.com. Write us, treff@treff-end.com. Follow us on twitter twitter.com/Treff_End. Grow spiritually, jmwoloko.treff-end.com. Watch our videos on Youtube, <https://www.youtube.com/watch?v=pze3KR6sc9E>

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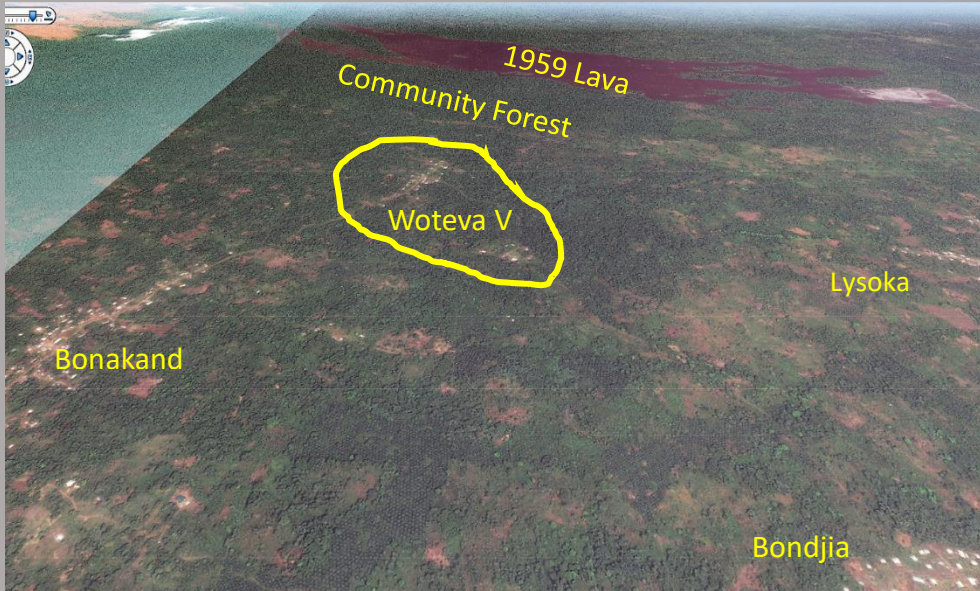
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Approach To Innovation, Woteva Village



The obvious challenge one sees at first sight on the foot of Mount Cameroon is uncontrolled deforestation. The major cause—illegal exploitation of forest resources and poor farming techniques. According to research, villages lost 21,580 hectares of forest between 1987 and 2002 and 22,600 hectares, between 2002 and 2010. An annual loss of about 2,825 hectares per year (MINFOF, 2014).

Most villagers survive from local forest resources. But an increase in population means forest has to give way to settlement areas and farms. Yet the foot of the mountain can't glitter with the stress humans inflict on it. Some migrate to congested cities or try to travel abroad in search of greener pastures. With so many needs—drinking water, medical facilities, unnecessary migration, mismanagement of resources, lack of common initiatives, poor education, reluctance to change, to mention only these few, there's a need for innovation.

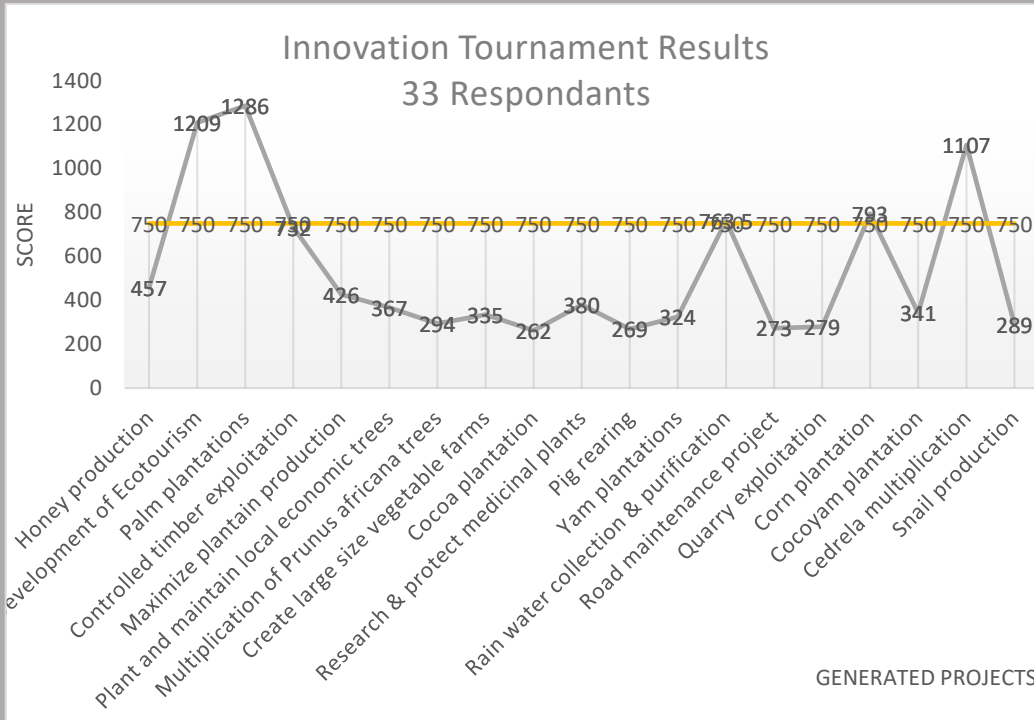
Treff-End engages villagers in social innovations. We need to start from somewhere. We

organize workshops to find base level project that can enhance the lives of villages. Our innovation tournament generated a series of projects villages can carry out, as seen in the chart.

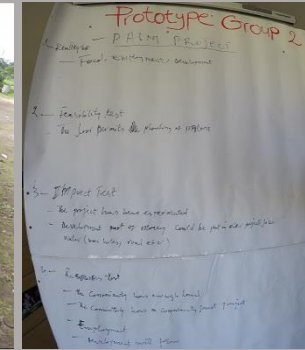
Group 1 10 participants



Workshops, Woteva Village Community Hall, 2017



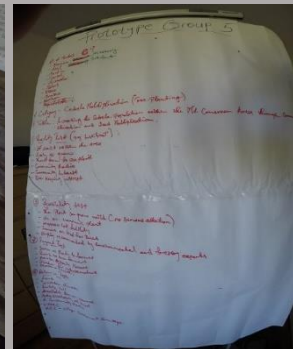
Group 2 , 10 participants



Group 4 , 6 participants



Group 3 , 10 participants



Group 5 , 8 participants



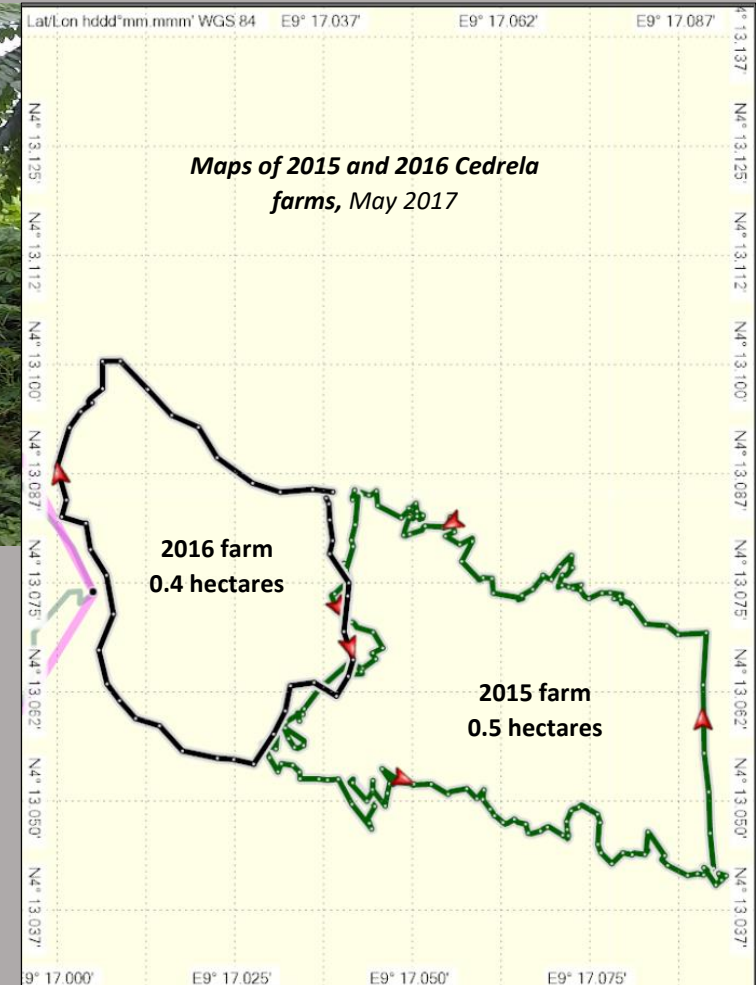
Cedrela Tree Planting Project

The Woteva Cedrela tree planting project is cost-effective and has a high future impact on the wellbeing of villagers. The experimental phase began in 2014-2015. We planted more than a thousand cedrela mexicana trees on two farms as shown on the map. Treff-End evaluated the results in 2017 in collaboration with Woteva people, neighboring villagers and Wewuley Consultancy, a forest management organization in the South-West Region.



We analyzed tree heights, diameters at breast height, parasite attacks, soils and climate conditions. Results are phenomenal. The average height and diameter at breast height in the farms is slightly above the 2m per year increase researchers attribute to this species under excellent growth conditions. Parasites, worms and other tree disease attacked none of the trees. But strong winds bent a few.

Apart from generating income, the tree flowers serve as an excellent source of nectar for honeybees, which will motivate villagers to start honey farm projects. An agroforestry planting system enables trees to serve as minor shades of coffee, cocoa and other cash crops. The project will revitalize the ecosystem and fight against severe climate change in this region.



Cedrela Species

Cedrela species comes originally from the Latin American forest of Mexico, Ecuador, Peru, Brazil and French Guyana. It grows very well in primary and secondary evergreen to semi-deciduous lowland and low mountainous forests (Orwa C, A Mutua, Kindt R, Jamnadass R, S Anthony, 2009). The Vitoria Botanic Garden brought this species into Cameroon in the 1950s and early 1960s.

Ideal growth altitudes of this species range between 0-1900m above sea level, mean annual temperatures of 22-32 degree centigrade and mean annual rainfall between 1000-3700 mm (Orwa C, A Mutua, Kindt R, Jamnadass R, S Anthony, 2009). It is a fast-growing species which once past the vulnerable stage adds on average 2.5cm in diameter and 2m in height a year under pleasant conditions and need exposure to light. In the absence of growth obstructions, trees reach heights ranging from 30 to 60m with Diameter at Breast Height (DBH) up to 120cm (S Cavers, C Navarro, AJ Lowe, 2003) in 40 years, branches up to 25m and a relatively narrowly buttressed base.



Cedrela shows high potential for plantations, as it is fast growing and produces multipurpose timber. You can expect flowers annually in between 10 to 12 years (Russell M. Burns and Barbara H. Honkala, 1990:250). A superb source of nectar for honeybees (Orwa C, A Mutua, Kindt R, Jamnadass R, S Anthony, 2009). Cedrela is a lightweight and moderately soft and durable tree with a density between 410-525kg/m³ at 12% moisture content (Orwa C, A Mutua, Kindt R, Jamnadass R, S Anthony, 2009). It is resistant to termites and many wood-boring insects.

The species has few disadvantages. Strong winds can bend them during early growth stages. So they require maintenance for 1 to 2 years to enable them to have access to sunlight. They have a habit to invade forests, requiring control to protect other species.

Financial Benefits

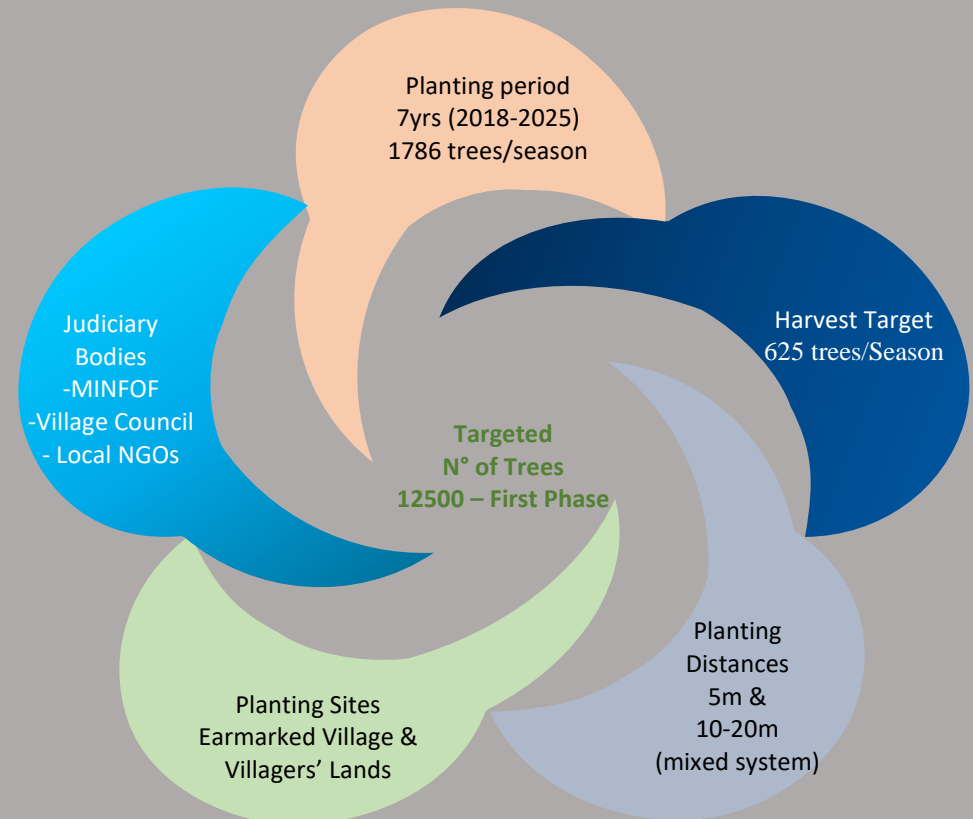
Given the tree DBH in centimeters (cm) measured 1.3m above ground level, trees height measured in meters (m), π (π) = 3.142 and assuming the tree is conical in shape with the DBH equivalent to the diameter at the base of the cone, the formula (Tree Volume (m³) = Tree Basal Area (m²) x Tree Height (m) / 3 = (DBH/200)² x π x h / 3) can be used to obtain conservative estimates of total underback tree volume in metre cube (m³) (Farm Forest Line, 2009).

Tree age (yrs.)	DBH (cm)	Height (m)	Volume / tree (m ³)	N° of trees targeted	Total Volume (m ³)	Volume / lumber (m ³)	N° of lumbers	Local market Price /m ³ (\$)	Income / tree (\$)	Income (\$ USD)
10	25	20	0.33	12,500	4,125	0.018	229,167	245.50	81.02	1,012,750
15	37.5	30	1.10		13,750		763,889		270.05	3,375,625
20	50	40	2.26		28,250		1,564,444		554.83	6,935,375

A 15 years old harvest of 625 trees is worth \$168,781 and a 20 years old harvest of 625 trees \$346,768. These figures assume all trees are planted in time, local cost of a meter cube of wood volume stays constant at \$245.50/m³ and all trees grow to maturity without growth obstructions. These harvest estimates also exclude harvesting and few other related cost.

Promising Future

Cedrela is a highly in demand timber species with various uses. It is 'premier timber for furniture, decorative veneer, musical instruments, wooden novelties and doors. It is best used for cigar boxes, but also for light construction, mouldings, cabinets, panelling, boxes, exterior joinery, weather boards, louvered doors, boat building (especially racing boats), canoes, turnery, matchboxes, household implements, plywood and firewood. It is also suitable for crates, fencing and animal pens. The repellent smell of the wood to insects makes it particularly suitable for manufacturing clothing chests and wardrobes' (Orwa C, A Mutua, Kindt R, Jamnadass R, S Anthony, 2009). The tree also has medicinal value. Its root and trunk bark are used to fight fever and body pain.



Teaching and Learning Processes Improvement

LifeWayLight Schools, Tanzania, A Lean Six Sigma Project



Arise And Shine

**Mr. Peterclavar Temba, the Head of Projects,
Lifewaylight Organization, Tanzania.**

Teachers who Attended the Training Sessions

- *Madam Konjesta Joseph Mruma*
- *Mr. Godwin Filemon Kisasi*
- *Sir. Yohana Daudi Makonga*
- *Mr. Peterclavar A. Temba
(Principal)*
- *Sir. Morris Mung'aro Katana*
- *Mr. Edibily Iddy Kwiganka*
- *Madam Beatrice Christopher
Nyombø*

		LSS Project														
		Activity	Week													
			1	2	3	4	5	6	7	8	9	10	11	12	13	14
Define	Introduction	█														
	Project Charter	█														
	SIPOC	█														
Measure	Interviews with students		█													
	Interviews with teachers		█													
	Interviews with parents concerned		█													
	Current teaching process chart			█												
Analyse	Value-add activities in the teaching process			█												
	Non-value add activities but required			█												
	Non-value add activities to be removed			█												
	Fishbone analysis diagram			█												
	Benchmark discussion			█												
Improve	Stakeholder analysis			█												
	Risks analysis			█												
	Special recommendations				█											
	New process Chart				█											
	Five S System				█											
	Training of teachers				█											
	Implementation					█	█	█	█	█	█	█	█	█		
Control	Monitor & evaluate – progress measurement					█	█	█	█	█	█	█	█			
	Final report/Presentation slides														█	
	Presentation in Lugano, Switzerland															█



On The Training Activities

Collecting The Voice of the Customer

Students



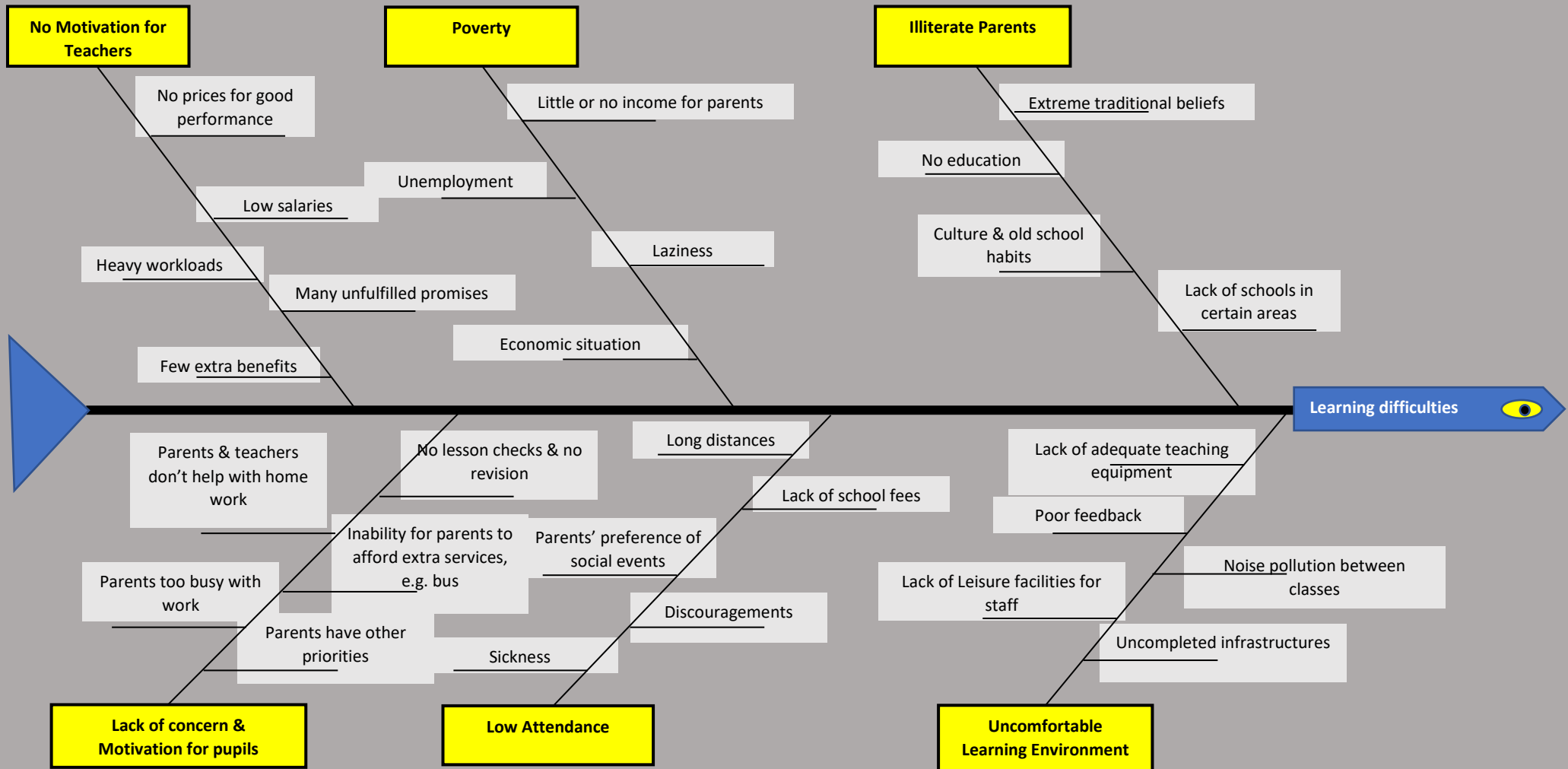
Teachers



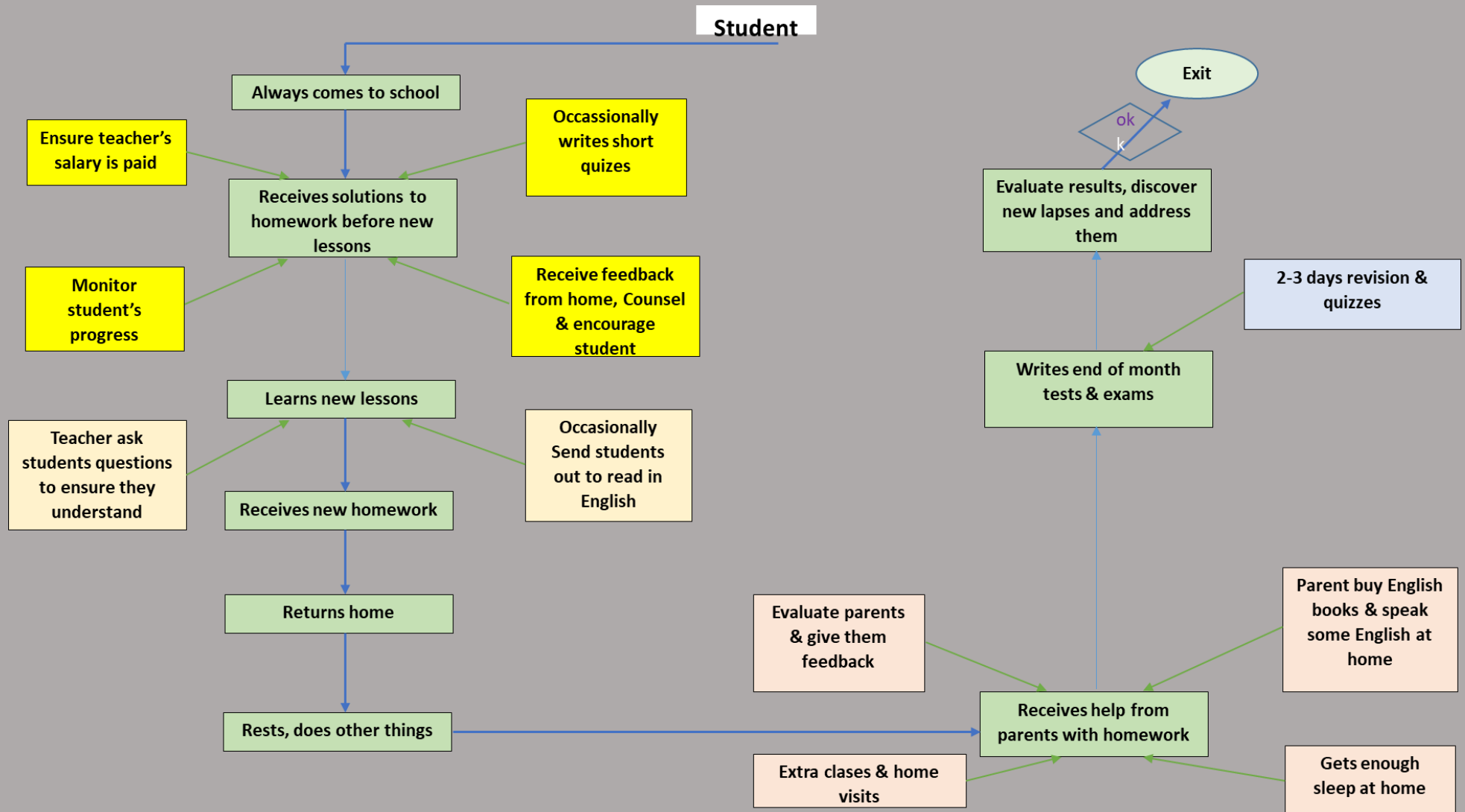
Parents



Challenges



New Teaching And Learning Process Map for Primary Schools





Ongoing Improvement of Process



**LifeWayLight Schools
Arise & Shine!**



Financial Statement

Income Statement

Income	Amount (CHF)	Total (CHF)
Donations (Family members)	500.00	500
Family	120.80	120.80
Others	300.00	300.00
Total	920.80	

Cash Flow

Cash Flow	Amount (CHF)
Workshops	534.85.00
LSS Project	300.00
Others	85.95
Total	920.80

To Sponsor a Project

Contact Treff-End

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Implementing Great Ideas

References

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