

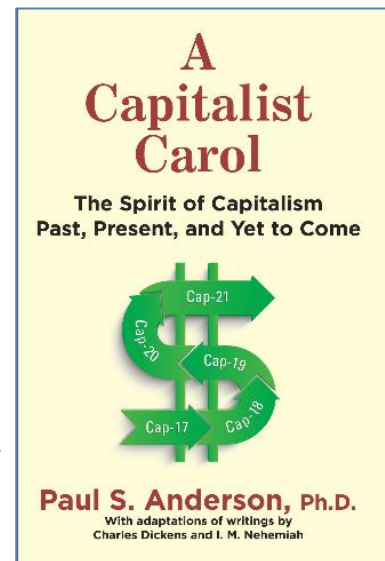
Improvement of Cooking Stoves: A Sub-theme within *A Capitalist Carol*

Copyright © 2018 by Paul S. Anderson, PhD

Setting the stage (There are no “spoilers” here).

A Twenty-first Century American “Scrooge” named Edward Rouge spends one night with ghosts who reveal the past, present and future of Capitalism in terms of his family and America and the outside world. Unlike the joyous ending of Dickens’ tale, the conclusion of *A Capitalist Carol* is perplexing and more thought provoking, including the basics of Capitalism-21 for reshaping American economics, politics and society.

This fiction book also has twelve topical non-fiction Commentaries and FAQs as supplemental materials that relate to the issues raised in *A Capitalist Carol*. Commentary 5 focuses on a sub-theme about cooking stoves for impoverished people. It is reprinted here with relevant excerpts from the book.



Information is at:
www.capitalism21.org
editor@capitalism21.org

Commentary 5 (pp. 88 - 94), plus excerpts from the fictional story.

At several places in *A Capitalist Carol*, references and visions are made about smoky cooking stoves that were used historically and are still used today by three billion impoverished people around the world, about forty percent of the world’s population. The sub-theme is that there is a very promising new cookstove technology that is ready for scale-up efforts. It has been shown to have sustainable results, especially with the poorest people who need the most help. But financial support is lacking even though there are literally billions of “pledged” but unspecified philanthropic dollars (as also mentioned in the story).

Excerpts from *A Capitalist Carol*. [Deletions are not shown, but additions are shown in [] brackets.]

Chap. 1, pp 15-16:

“You will be haunted,” resumed the Ghost [of Professor Farley, rattling his chains], “by three spirits. Expect the first tonight when the clock shows One.”

The apparition walked backward from him, toward the large [14th floor hotel] window. It beckoned Rouge to approach, which he did. Through the window he heard confused noises in the air; incoherent sounds of lamentation and regret; wailings inexpressibly sorrowful and self-accusatory. The spirit, after listening for a moment, joined in the mournful dirge, and floated out the closed window and into the bleak, dark night.

The air was filled with phantoms, wandering hither and thither in restless haste, and moaning as they went. Every one of them wore chains like Farley’s ghost. Together they cried piteously at being unable to assist a wretched woman with an infant. She was cooking a meager meal in a pot on a very smoky stove made of rocks and mud. The misery of all the spirits was clearly that they sought to interfere, for good purposes, in human matters, and had lost the power to do so.

Chap.2, pp. 26-27.

They moved as if through a mist and into the scenes being described by the Ghost [of Times Past]. “Sometimes, small events will alter the courses of many lives, with some being extremely favored and others

suffering consequences beyond their control. About the same time [in the 1830s] as Dickens was writing *Oliver Twist*, there were twin sisters in eastern Africa, age 12. Agna and Beeta lived in a stick and mud hut with a thatched grass roof. They helped their mother by bringing water and cooking food over a three-stone smoky fire with wood they had carried in heavy bundles on their heads.”

As the Spirit spoke, Rouge could even smell the smoke, and coughed, as did others in the kitchen, but Rouge was not heard by the family when he said disapprovingly: “They need a chimney, a better stove, or an exhaust fan. What’s the matter with these people?”

“They are poor, Rouge. They simply do not have anything, nor the knowledge of what they could do to get out of the smoke. Cooking is essential. Every day they do this, as do more than two billion people in the modern world.

“But there has been progress for clean burning stoves that use wood and other dry biomass for cooking. Here, see this in northern Uganda in 1998. The white fellow is Paal Wendelbo, a Norwegian developing a gas-burning stove that makes its own cooking gas from wood while leaving charcoal behind. Micro-gasifier stoves are so much cleaner and more fuel efficient than traditional and simple improved stoves.”

Rouge was keenly looking at the stoves.

“The unfortunate part of this story,” continued the Spirit, “is that a year later Wendelbo had a severe case of malaria that almost killed him and took him out of Africa. His project with five thousand stoves died out. Smoky stoves are still the fifth worst health hazard for the poorest third of the world’s population and inefficient stoves contribute to several major environmental problems, including deforestation.”

The Spirit paused, and then said: “You have distracted me from the case of the two Kenyan twins.”

The Spirit continued: “As Agna and Beeta were returning one day with their firewood, men of a competing tribe grabbed them to sell to slave traders on the coast. In the ensuing struggle, Beeta managed to break free and ran for help. The twins last saw each other in a fleeting glimpse. Beeta’s good fortune was told and re-told for several generations. Agna became only a faint memory.

“Agna was hauled away into slavery in America. She was sold four times, the final one when she and her husband were separated from each other and from their two oldest children.”

Chap. 4, pp. 67-69.

The Ghost [of Times Yet To Come] then warned: “You shouldn’t bet your grandchildren’s welfare on technology to save them and America. Globalization impacts every society, and we see clearly how slowly benefits reach the needy. Mobile phones and handheld Internet access are great examples of technology reaching the masses. But even a few billion happy users do not compensate for the other billions living out of reach of the basics of life, and without mobile phones or even electricity.

“Look at history,” said the Spirit as again he presents a panorama showing what he mentions. “Wealthy people and wealthy nations do things for themselves and let the fringe benefits possibly help the impoverished.

“The Spirit of Times Present has already told you about river blindness being treatable, but even with unlimited free supply of the medicine for humans, the disease is still significant. And polio is nearly eradicated because Rotary International, a service organization, was the spark and driving force that pushed international and national health organizations to participate to do what they should have done decades earlier. And the Gates Foundation, including Buffett money, joined the efforts in 2007 with some important big funding to accomplish worldwide total eradication of polio. One success story, almost. Even the very best of efforts reveal that not enough is being done fast enough to resolve other important issues.

“Remember that Norwegian guy, Wendelbo, with the gasifier stove in Uganda? Well, that stove technology has had a successful pilot project in Deganga, West Bengal, India with 11,000 stoves. The numerous benefits for human health, spending less for fuel, saving trees, reduction of atmospheric CO₂, and better lives for women and girls are all accomplished with a forty-dollar stove. When people have access to that gasifier stove, it more than pays for itself via the creation of carbon offsets and residual ‘by-product’ charcoal that can be sold for hard cash. The gasifier stove could provide a modest income stream for the poorest people if the carbon credits would be purchased by the fossil-fuel users in affluent societies.

“But that technology and project are languishing because the poor, needy people cannot pay the up-front price of forty dollars. And the project needs to scale up to show its full potential. Eventually 250 million impoverished households would be paying back the ten billion dollars that are needed gradually by 2026 to solve a true world problem.”



A micro-gasifier stove in West Bengal, India, to cook food and create charcoal.

“Ten billion dollars? Never happen. Not even if the money could be paid back,” scoffed Rouge.

“Really?” replied the Spirit. “The many signers of the ‘Giving Pledge’ are providing literally hundreds of billions of dollars to do good. Unfortunately, those billionaires and the money managers of their name-sake foundations are not stepping forward fast enough for seeking possible impact with higher risks. Even the most generous of the large donors are increasing their wealth faster than they distribute funds.

“River blindness, polio, and gasifier cookstoves are three health-related examples that show the delay to provide available technology to benefit the poorest people. We could also consider reasonable education, clean water, basic housing, sustainable energy, adequate food, etc. Do you need more examples of rampant inequality and the dire conditions of the unfortunate in our societies?”

From Commentary 5:

Remember in Chapter 2, the Norwegian Paal Wendelbo (now deceased) and his gasifier stove in Uganda? He and an American gasification expert, Dr. Thomas B. Reed, independently accomplished the initial inventive discoveries. And Dr. Reed [deceased in 2018] accidentally recruited a “disciple” in 2001 who has nurtured, named, promoted, defended, and advocated this micro-gasifier technology. That person is Dr. Paul Anderson, the author (with acknowledgments of prior writings by Charles Dickens and I.M. Nehemiah) of *A Capitalist Carol*. As of this writing, he has been unsuccessful in his attempts to bring the gasifier cookstoves to the attention of those (no names are given) who could write a check and change for the better the lives of millions of people who live every day with inadequate and harmful smoky stoves.

Objective: Dr. Anderson hopes that this book and its sub-theme of cookstoves will attract the attention of one or more wealthy, generous, **impact-seeking** persons who would contact him about sponsoring the needed scale-up efforts for gasifier cookstoves. These contributions could change the world (see info below) in a few short years. Such support could be tailored to the donor's interests and would exemplify service to mankind that is one of the pillars of Capitalism-21.

Quick summary (based on experiences in India, not on speculation.)

Gasification Technology: Pyrolytic BioGas (PBG) for cooking is a very clean burning gas in an appropriate micro-gasifier stove. PBG is created from dry biomass (wood, agro-residues, etc.) inside a "TLUD (tee-lud)" stove device for cooking while simultaneously creating charcoal as a valued co-product.

Cost per household: US\$40 per stove (factory cost for which finance is needed) and \$15 to \$20 for first-year support services (paid by each household directly or via micro-credit, with that amount reduced in the second and subsequent years to less than \$10 per year to be covered by carbon credit sales.) The stoves are not free, but their usage earns income for the household.

Gains per year per household:

1. Reduces fuel usage. Each household (HH) saves money or time to obtain and use less of the same type of biomass fuel that it traditionally uses and has available. (Save approximately US\$80 to \$120 per year per HH.)
2. Creates four (4) carbon offsets; total of 4 tonnes CO₂e per stove per year
 - a. (Marketable by the sponsoring project, earning \$6 – 10 per carbon credit)
 - b. (Reducing atmospheric GreenHouse Gases (GHG))
3. Reduces Household Air Pollution (HAP) (Better health for family)
4. Makes marketable charcoal (Family income can increase up to \$40/yr.)
5. Creates local jobs (Related to stoves, fuels and charcoal)

NOTE: This is better than sustainable. The use of this stove is profitable for the poorest people. But they need help to obtain the stove in order to get started.

Implementation, Scale-up and Impact

1. Community-size program (for critical mass)

A community-level development activity needs to have at least 2500 households (HH) (maybe 20 – 60% of a whole community) sufficiently near each other to sustain operational services for user support, stove maintenance, charcoal buy-back, and verifications to confirm the carbon offsets. At \$40 per stove from a factory, \$100,000 is needed to have 2500 families receiving all the above-named gains per year for at least five years, with self-sustained continuation. Such communities are the basis for implementation at all the larger scales. Functional implementations already exist and are continuing in West Bengal, India, and can be expanded or started in new areas.

2. Business-size project

A business-size project is structured with up to ten communities for a total of 25,000 HH within a manageable area. This requires some coordinated (private or NGO) administration to optimize sustainability and benefits for all involved. This size of project progressively needs up to one million dollars for stove acquisitions and placements to accomplish the following:

- A. Reduction of 100,000 tonnes of CO₂e per year equals 100,000 carbon offset credits that are

available for sale to finance on-going project costs and give possible financial returns to the communities as “profit sharing” (or for loan repayment if financed by lenders).

B. Healthier, less smoky kitchens for approximately 150,000 people every year.

C. Approximately 7500 tonnes per year of TLUD-created charcoal could be commercially sold or sequestered into local soils as biochar that improves gardens and agriculture.

D. Creates about 100 local jobs related to the charcoal business.

(Notes: One business-size project exists since 2017 in India. See www.dtrlud.com/deganga2016. Additional projects could start immediately and could include other design-models of TLUD stoves, including units with small fans that enhance the performance and appeal of the stoves.)

3. State- or National-size implementation

One million stoves into one million HH would involve about 40 business-size projects. Funding of 40 million dollars is needed, but is justified, considering the HH impacts (lower fuel expenses and better health) for six million people, plus these other project paybacks:

D. Four million carbon credits per year for sale, with income to administer and maintain the projects while generating development funds for participating communities, sponsor-organizations, and nations. This includes significant job creation.

E. About 300,000 tonnes/yr of biochar-grade charcoal which, if sequestered in soil, represents the equivalent of over one million tonnes of CO₂ removed for over 500 years from the atmosphere. This represents carbon drawdown (being carbon negative and not merely carbon neutral.)

(Notes: This scale-up does not need to be all in one area and can be in progressive stages, in consultation with donors and recipient communities. Projects use existing manufacturers with spare capacity, with local assembly when possible. Funds go to assist people who will use the stoves, not to capital investments. However, if the definition of capital investment could include buying cookstoves that earn money by creating carbon credits and charcoal to sell, then a TLUD stove project could create one million “nano-entrepreneurs” who are highly motivated to work with the investment because they use the stoves every day to cook their meals.)

4. Regional scale

Twenty-five million stoves into one nation (such as Bangladesh) or into a cluster of nations (as in regions of Africa, such as Ghana and surrounding countries) or into many separate nations, would involve manufacturing and purchase of TLUD stoves valued at one billion dollars. This is too much money to expect from small donations or even from national and multi-national entities, and certainly not in the near-term years for appropriate rapid scale-up. But a billion dollars is well within the capacity of a single or group of multi-billionaires who desire impact soon. They might only need to provide a guarantee of otherwise unsecured low interest loans that the banking community would [otherwise] reject because of perceived risks associated with thousands of independent community projects or possible market fluctuations for carbon credits in the next ten years. Impacts include:

A. Improving the lives of 25 million families, which is about 150 million of the poorest people on earth.

B. Significant reduction in the cutting of forests and wildlife habitat and/or major stimulation of alternative biomass fuels such as agro-refuse, bamboo, or industrially produced pellets and briquettes.

C. Creation of 7.5 million tonnes/yr of charcoal that could be sequestered as soil-building biochar. This charcoal is part of the 100 million tonnes of CO₂e emissions avoided by the routine cooking activities of very low-income people who are trying to feed themselves, not trying to create carbon credits.

(Note: Successful implementation of 25 million TLUD stoves could be the tipping point beyond which further scale-up is self-propelled with established commercial and governmental processes. However, with

90% of the world's need for improved cookstoves still remaining, and not wanting to lose the momentum, further funding [by ultra-wealthy people] would still be very appropriate, including for capable project management.)

5. World scale

Forty percent (three billion people in 500 million households) of the world's population cook meals every day on inefficient stoves using solid fuels (mostly wood and some coal). The socio-economic upper half of them might possibly convert to stoves fueled by LPG, natural gas, electricity, biogas, solar radiation and alcohol. The other 250 million households have no choice; most must continue to cook with their locally available woody fuels. Reaching all of them by 2027 is the goal of the TLUD gasifier stove efforts.

One TLUD stove for each of those 250 million households will cost about ten billion dollars. This tenfold expansion would be significant international business. The 10% least accessible HH could be especially difficult, but there might also be tens of millions of additional households that do not transition to the other clean-cooking technologies or did transition and are choosing to return to biomass fuel with clean-burning TLUD stoves. Other impacts would include:

F. If the stove life is 10 years, the industry would need to produce 25 million new stoves per year, becoming a substantial employer along with the biomass fuel industry. (Note: Such volume is not hard to accomplish, considering that over 70 million automobiles are produced worldwide every year.)

G. With four carbon credits per TLUD stove, that would be one gigatonne CO₂e reduction per year by the world's poorest people using TLUD cookstoves. By 2050, that could exceed 25 GT of "Total Atmospheric CO₂-eq Reduction," placing these stoves in the top ten of the eighty solutions examined by Project Drawdown (see *Drawdown*, 2017, p. 222). (*Note: No other drawdown solution comes close to this amount of impact so quickly for so little cost and with such great benefits for the most underserved people on earth.*)

G. Of that annual reduction, nearly 75 million tonnes of charcoal per year could be sequestered in soils as biochar, with benefits for the atmosphere, soil structure, soil microbes, water retention, and agricultural productivity.

6. Summary

This appears to be a win-win-win-win-win-win situation for impoverished people, their communities, their nations, the soil, and our planet's atmosphere and climate. TLUD stoves represent a solid and immediate prospect for favorable impact at this time when the entire world would like to have some major success stories in the fight against poverty and climate disruption. The technology, production capacity, methods of implementation, accepting markets, sustainability, and desirable benefits are all present. What is lacking is funding that is declared to be available to do good for the world but is not yet designated for gasifier stoves.

For further information about these stoves and the opportunities that they represent, please visit the website www.drtlud.com . Note: Dr. Anderson's efforts for cookstoves are channeled through Juntos Energy Solutions NFP, an America-based 501(c)(3) corporation, so this is not a self-enrichment effort (visit website www.JuntosNFP.org for information about projects and ways to participate). Please consider making a donation.

To all readers: Please freely copy / reprint / distribute these pages to all your friends. The hope is that eventually this message will reach one or more billionaires and multi-millionaires who will respond.

History is being made as the scale-up efforts grow in both numbers and geographic areas.