Solid green curve shows the time used (TU) within the community to meet needs, with respect to resource consumption. Canadian Data from 2005 shows an R2 of 98% on 10 deciles of household income. This is a line with high confidence.

Dashed black curve shows the effectiveness of how people use their time to meet their needs, with respect to resource consumption. It is the time-weighted fraction of the needs that are unmet. The line shown is imaginary – Canadian data is much flatter. The rest of the graph falls out from these two lines.

Purple curve is the Potential Quality of Life = 24h/d/ca minus the time used to meet needs.

Grey curve is the Actualized Quality of Life. Lifestyles that have a positive AQoL can be considered Sustainable, because when the resources that are being over-consumed cease to be available, people will still be able to meet all of their needs in less than 24 h/d/ca. Its math is T=24-(24-TU)/eff, and it is the time that would be used to meet needs, as if all needs were being met.

Unsustainable

Sustainable Growth

Sustainable Degrowth

Sweet Spot

Poverty

Below Subsistence

Affluence

Immanent Collapse

0 24 h/d/ca

0

Below Subsistence = Potential Quality of Life (PQoL)>24 hr/d/ca. More than 24 hours per day per person required to meet needs. Community fails.

Poverty = TU<24hr/d/ca, Eff< TU/(24h/d/ca). While less than 24h/d/ca is used to meet needs, not all needs can be met. Community can succeed, but requires development.

Sustainable Growth = TU<24hr/d/ca, Eff> TU/(24h/d/ca),AQoL>0, PQoL’>0. All needs can be met, and an increase in consumption will increase both the PQoL and the AQoL. All forms of development improve quality of life.

Sweet Spot = AQoL’>0, PQoL’<0. Near maximal solution. An increase in effectiveness and a decrease in consumption will produce the best outcomes, but the net long term benefit and net short term impact are very slight.

Sustainable Degrowth = AQoL’<0, PQoL’<0, AQoL’<T’. A decrease in consumption must be coupled with an increase in effectiveness to ensure that the immediate loss of time is balanced with an immediate improvement in Actualized Quality of Life. AQoL does not increase with an increase in consumption.

Affluence = AQoL’ is steeper than T’. An increase in individual consumption will have a larger negative impact on the long-term community quality of life than the short-term increase of the individual quality of life. Reductions in individual consumption can be ‘subsidized’ by the community and still have a net benefit.

Unsustainable = AQoL<0, PQoL>0. When imported resources cease to be available, the loss in the quality of life that results from substitution can only be replaced by improvements in effectiveness.

Immanent Collapse = PQoL<0. When imported resources cease to be available, the loss in the quality of life that results from the substitution cannot be replaced in a way that all needs can be met.

If AQoL is always below 0, then the community is not sustainable. Sustainable Growth, Sweet Spot, Sustainable Degrowth, and Affluence do not exist. Unsustainable overlaps Poverty completely.

If AQoL is below 0 when EF is above the Community Managed BioCapacity, then there is no Sustainable Growth or Sweet Spot.

If Effectiveness is fairly close to constant, the Sweet Spot will be effectively a point on the curve. Still aim for it, but know that it will be a dynamic target that will need constant adjustment.

If Effectiveness is high enough where it crosses the TU(EF) curve, then Poverty will be a fairly narrow range, and Sustainable Growth will be very broad. This should be the whole purpose of poverty reduction initiatives – remove the obstructions in the self, family, and community that prevent people from being able to meet their needs, and focus on those with the lowest effectiveness.

It is possible that effectiveness drops, rather than continues to rise with increasing consumption. That would imply that consuming more resources doesn’t make people happier. Consuming more resources comes from having more income which comes from working more and harder – although that isn’t a perfect relationship.