

NOTES

The Industrial Revolution, Blue Growth and Development Policies

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In a world with an increasing population to feed, and increasing ambitions of peoples for a better future for themselves and their children, the case for growth is easy to make. However, after about 200 years of the Industrial Revolution in its various phases, it is still unclear what drove it in the first place, how it happened, and why it took place at a certain time in certain places of the World and not in others. We have ideas about it, some very good and convincing but we still don't really know.

The above assertion also implies that some regions of the world barely benefit from the fruits of the Industrial Revolution. Zooming in time to the present, we do not yet know how to ensure that this revolution takes due consideration of the environment, so that it can in the end be environmentally sustainable in a global sense. Make no mistake about it! I am a fan of the Industrial Revolution and therefore the case for growth is an easy case for me to understand. However, the Fourth Industrial Revolution is upon us and we still haven't solved the two big issues mentioned above. Namely, "The Great Divide", and how we limit the environmental impacts of our activities, so that they do not cause disasters that are greater than the continuing benefits derived from the Industrial Revolution.

I would therefore, in light of the above, argue that the First Industrial Revolution is not finished. Maybe it will never be finished, but it can certainly be taken further. I would then suggest, *three policies* we should as a global community adapt to take the First Industrial Revolution with some new elements further, with support of the subsequent phases two to four, for the benefit of a larger part of the Global population.

Politics, Blue Growth and the Sun

Even though we don't know exactly why and how the First Industrial Revolution happened. We know the main characteristics of the societies involved and that evolved from its development. The *first policy* (without wanting to be too descriptive) would therefore be, to foster and create innovative societies, based on democratic principles with strong elements of competitive but fair markets. With certain elements of egalitarianism, basic welfare systems and constraints on extreme distribution of income and wealth. Therefore, ensuring inclusiveness, the broadest possible base of brainpower contributing to development and preventing social disruption due to distribution issues.

Accepting that the first Industrial Revolution is not finished, and that the Great Divide exists, we also need to acknowledge old environmental problems such as biodiversity hazards and land-based oceanic pollution, as well as new ones like plastic and other pollutants and climate change. Our *second policy* needs to be to put “all our efforts” and appropriate resources, both technical and socio-economic, into solving these issues. Using both old and new methods and not forgetting the old ones just because we have new ones. In fact the old ones can be just as appropriate, and maybe more so, under various circumstances and stages of development.

Some would say that what I have mentioned above is what we are already doing, that this would just be more of the same, and even that it is a utopian description. I would answer: Yes, in some places some of the time and to a certain extent. However not always and not enough. That therefore, definitely more of this, even if it is to some extent the same will help the global population.

However, what matters a lot in the present and the future, is both the How? and the Where? I have described above a little bit of the political context of the How, but there is also the Where. Even though we can still increase global food production on land within the conventional context with improved and possibly new technologies. All the same, if the global population continues to grow and consumption continues to increase we are likely to reach a limit of some kind sooner than later. We therefore need the *third policy*!

Life thrives on Earth because of the Sun. We have through the ages made amazing advances in the amount of food we grow on the terrestrial ca. 1/3 of the Globe. This we have done to the extent that as well as contributing to our experience of climate change and pollution, the soil and forests are showing distinct signs of wear and tear. In spite of having enjoyed fishing from very early on in development, Man has not harvested from the Oceans proportionally to the Oceans capture of the life giving sunlight. In fact only around 5 percent of Global food supply comes from the Oceans. There is no doubt that herein lies one of mankind’s biggest future challenges: the greater use of renewable energy from the sun to drive the production of harvestable or otherwise income generating renewable living resources of the Oceans. This is the Blue Growth part of the more general Blue Economy concept.

Blue Growth

Up until very recently, fisheries and to a lesser extent the harvest of seaweeds has been the biggest benefit mankind has got from the Oceans’ living renewable resources. Recently, in spite of ancient roots, aquaculture has begun contributing considerably, but with large inputs both from terrestrial crop production and fisheries, although declining in volume from the latter. However, the great success of the fishing industry has taken its toll and a large proportion of fisheries resources are under stress – one in every three marine fish stocks is overfished. Despite significant recent progress, in high-trophic aquaculture (e.g. salmon), there is a trade off with fisheries which can limit its capacity if the development of alternative feeds does not continue. Fortunately, indications are positive, and aquatic production systems will then have a much smaller ecological footprint than most, if not all terrestrial protein producing systems have today. This is also because fish are much more efficient convertors of food into protein, because they do not have to maintain a constant body temperature and because, being held by water, they require less skeletal tissues.

Today around ten percent of the Global population relies on fisheries and aquaculture for their livelihoods. There is no doubt that amongst this ten percent of the population are some

rich and successful people and peoples, but the very large majority of the total number of people involved in fisheries are some of the poorest and most vulnerable in the world. This is partly because here we find some of those that were left behind during the early phases of the Industrial Revolution, but also some of those that face the greatest environmental and political challenges of our era. Overfishing, climate change, sea level rise, nutritional deficiencies, migration and refugee pressures to name the best known ones. These are the people I am most worried about, and they are in the greatest need to benefit from development through Blue Growth.

Coastal communities and rights

How to help these people, primarily in coastal communities, in the context of Blue Growth is not easy but absolutely necessary. As is emphasized in the FAO Small Scale Fisheries Guidelines, inclusiveness and participation of all concerned is of paramount importance if success is to be possible. The point of departure is of course the essential improvement of fisheries management, without which no capacity for growth can be sustainable. Here in adapting to local conditions, we use the guidance from the FAO Code of Conduct for Responsible Fisheries and the FAO Ecosystem Approach to Fisheries (EAF). We however know that under most circumstances, improvements in management means reducing the effort and the catch to allow the stock time to recover. The period can vary depending on the stock and the environment, as well as effective implementation of management measures, including controlling illegal activity. The short-term consequences are that there may be less fish caught and a smaller income from the fishery. With time, the catch will increase again possibly to higher levels than before and the income will rise again correspondingly. Nevertheless, the number of jobs will not always follow in exact proportion to the increases in production because of productivity increases. This situation needs to be addressed, as benefits need to filter down to dependent communities.

It is extremely important, both for the individuals and for the communities concerned, as well as for the success of the fisheries improvement projects, that new jobs be created. Here, a range of options come into play, but primarily these options revolve around increasing the value of the catch, and deepening the involvement of the community in marketing the products. This calls for outside as well as hopefully internal enterprise investment with linked rights to both fisheries and aquaculture concerns. The rights I am talking about are not the type of rights that lead to destabilization but rights that lead to stability, long term planning of when and what to catch depending on markets and price conditions. Rights that are inclusive, benefit all in the community in a fair way and based on human rights concepts for food and nutrition security.

Conclusion

Changes like these take time. If they are to be successful, they have to be linked to appropriate socio-economic support. The point is to help people to improve their livelihoods and encourage them to stay in their communities. The point is not to drive migration but to decrease the likelihood of migration. It is not easy, but it is possible. We have the tools to do this and if we commit to it in the broader context of the *three policies* described in this note, we will be successful.