The world is getting brighter

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An overview - Aug. 2010

Canada topography

The 1960's NAWAPA-Plan catchments basin covers the area between Dawson City and Whitehorse (south-east of the Alaska border), including a portion of the Mackenzie River watershed (green - to the east of it). General precipitation in this area is a mere 20 inches/year. The source elevation for input to NAWAPA ranges between 500 and 1,200 feet.

The latest expected diversion rate of 6,260 cubic meters per second, or 160 million acre feet per year, comprises 39% of the outflow of the Yukon and Mackenzie Rivers.

The world is also getting colder towards a New Ice Age ahead that is imposing a systemic phase change in humanity

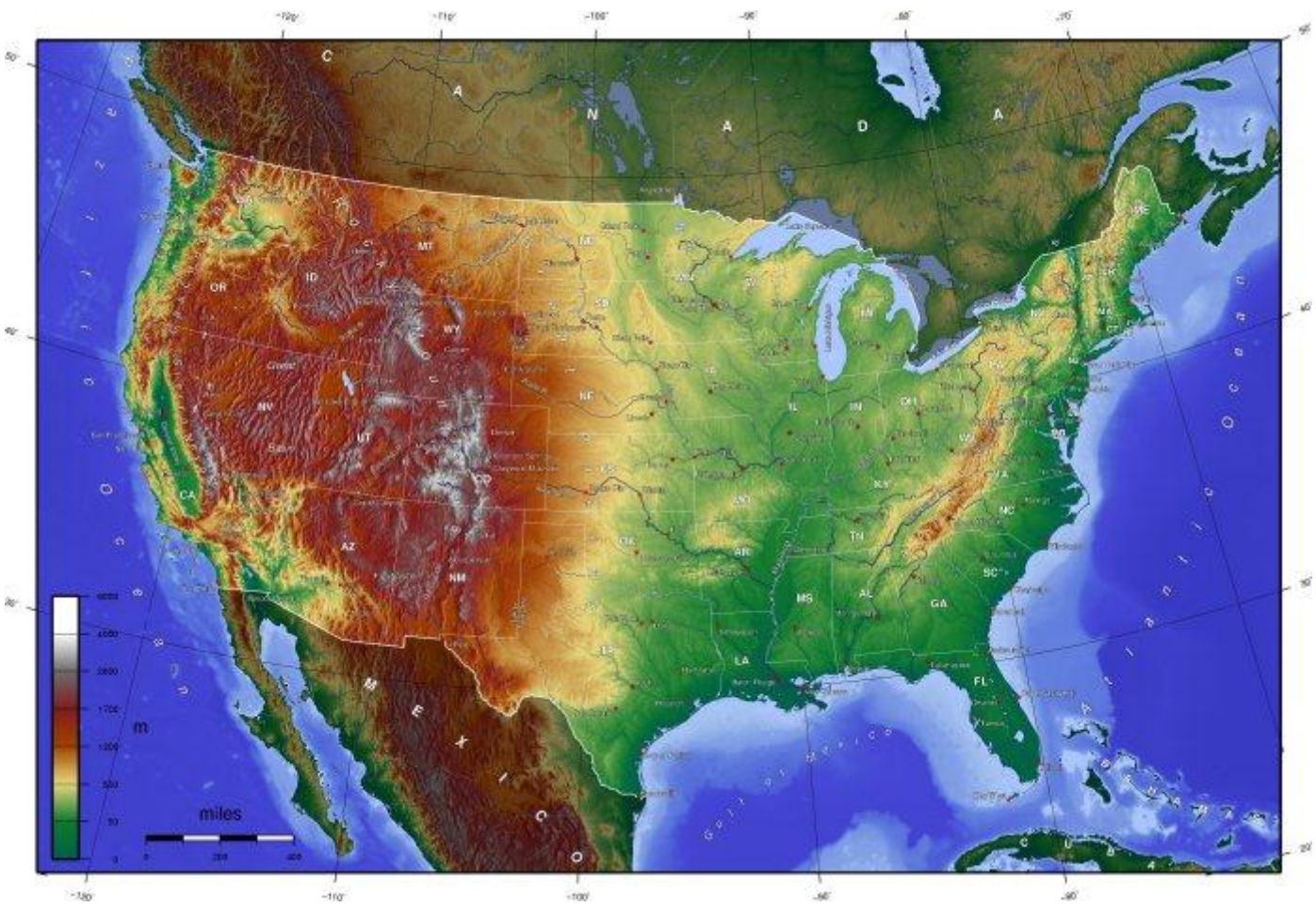
(C) see: USA Precipitation Map

NAWAPA destination area covers the low precipitation region of the USA

red=5, dark brwn=10, light brwn=15, yellow=20, greens=30-100, blue to purple=100-200, (max in inches per year)

comprising a 1.5 million square miles area (960 million acres) in the West

The NAWAPA annual average inflow of 160 million acre feet amounts to 2 inches per year.



(C) see: USA topography

Yes, it is a question of Dynamics.

In a comment about the previous article NAWAPA, it was stated to me:

NAWAPA is not a project to bring water to areas that need it, it is a thrust of a political revolution. One must really master Liebniz and Shelly on dynamics-- of science and social processes. Reducing it to mechanistic projects not only insures that it will never be done, but ensures the destruction of civilization itself.

Without the US leading the world in a physical economy renaissance, there is no possibility of defeating the oligarchy or even surviving the present collapse.

So, how do we put the US in the condition to do that. You must change the US population as the first task. Only by giving the population a mission, that they can participate in directly in changing the physical and cultural reality they live in will it be possible to mobilize them.

Already, the calls the basement team is making to engineering companies, mining companies and state resource planning departments is generating an excitement among these professionals for the NAWAPA revolution. "How can I help," is a typical question.

Your abstract project approach is the best illustration of being practical, as your own wording indicates: "It will be cheaper." That is the same practical argument reductionists at all levels use-- because they do not understand dynamics.

As for your technical point about water flows, I'm sure you are correct in some of it-- but it is irrelevant to the mission. Technicalities can be corrected as you go.

The ice age? Again irrelevant. We cannot determine what we do now to save civilization itself on a forecast that could be 100 years or 10,000 years.

These are all valid points of great importance to be recognized, I agree, especially the dynamics aspect, because economics is a dynamic process not a mechanistic one. The mechanics are determined by the potential dynamics. It is the creative power of the human mind that determines the mechanics of the footsteps in implementation. However, in this dynamic process fundamental physical principles come into play that we cannot loose sight of, namely the dynamic matching for the scope of the inspired objective with the scope of the resources. If the physical principles are ignored, the most ideal project becomes just a make-work project that neither inspires society nor aids it in improving its world.

Natural dynamics

Every dynamic system is governed by a fundamental natural principle that requires that the resources for a process match the scope of the objective. In electronics, this is called "impedance matching." In electric power systems its called load and supply matching. In physical economics the watchword is resource and objectives matching. For example, the resources must be adjusted and improved until they meet the objectives, or the objectives must be lowered. One can't cheat on this principle, not even for a noble goal such as getting America back to work. NAWAPA must be judged on this basis, if it is to inspire society with its merits on the basis of its practicality, for which the resources must exist, and must be understood to exist.

Here the defined NAWAPA plan begins to break down. It was early understood in the planning process that the resources for the objectives are inadequate. Consequently the plan was upgraded from diverting 15% of the river's outflow, to the current 39%. But does this solve the problem? Do the resources really match the objectives?

If the objectives are modest, such as to create an oasis or two, or three, somewhere in the dry desserts of the USA, then the resources as they are defined in plane are adequate for the objective. Also, if the

objective is to get people to work, just to do something, then the plan is big enough to meet this objective too. Low-technology projects are always manpower intensive. If on the other hand the objective is to uplift the biological productive power of the western half of the USA, then the resources simply aren't available in the current plan to come even close to meeting such an objective. It is not likely then that society will be inspired by the plan, initially maybe, but not when the dynamics mismatch comes to light. To be inspired, society needs something that it can trust to give it a richer and more secure life, something substantial, something based on the power if its highest technological achievements.

Here is were the plan fails, which is essentially a low-technology plan, and a plan that had envisioned resources in the 1960s and 1970s that are no longer available whereby the entire dynamics of the plan are radically changed.

For example, it simply doesn't inspire anyone to realize that the 160 MAF of diverted water that the plan calls for amount to no more than two inches of water per year for the target area. The famous Dr. Suez would call this result "a crumb too small for a mouse." Indeed, this is what 2 inches per year add up to. And when it takes a process of 35 years of enormous effort to accomplish that 'capability' the inspiration fades fast?

Such comments of doubt in the dynamics are not unreasonable when one looks at the physical and also psychological and economic factors. Neither is the recognition of the physical facts, reductionist in nature, especially when the physical facts critical elements in this project that has the potential to be the most powerful project of our time if the critical elements are sound, substantial, build on efficient principles, and therefore is worth the effort of a long-term effort on a continental scale.

It is for this reason that an extensive critical exploration the dynamics of current plan is justified, exploring deficiencies and alternative on the basis of modern technological capabilities.

The economic dynamics.

Yes, there are some mechanistic aspects to consider in physical processes, in the context of them being a part of the dynamics of the system. One case in point, of the NAWAPA plan, is the Rocky-Mountain-Trench Reservoir, "a 500 mile long manmade lake, 10 miles wide, 300 feed deep, reaching from central British Columbia all the way into northern Montana to Flathead Lake." Mechanistically this reservoir is necessary for supply/load balancing, since is the supply side in permafrost country is only active for 5 months of the year, and is frozen for the rest of the time. The high lake serves this balancing function well. However, the lake also cuts off Canada's only two transcontinental railways links, and one lesser line in the south of BC, and one in Montana. The flooding of the Rocky Mountain Trench would require Canada's transcontinental railways to be rerouted around the reservoir, forcing a 500 to 1200 km detour (in some cases) and possibly a major rerouting of Canada's western rail network. It would also require the relocation of several entire cities. In this context the NAWAPA plan has a significant debilitating impact on Canada's economic dynamics. If the plan is designed for an economic uplift, the diminishing of a nation economic power is evidently not a progressive step.

Sure, for grand infrastructure projects that uplift a continent, the demands for large sacrifices are not unseasonable. But what specifically would the large sacrifices be demanded for? On this issue of what it is for, the NAWAPA plan of the 1960s breaks down. The end product makes the system by its own dynamics a dead issue. The entire gigantic infrastructure system is designed for a fixed capacity with no expansion capability that is inherent in the system design. When the system is built and in operation 35 years from the time the spate goes into the ground, nothing can be done to easily double its output. This makes it a dead system by design. In the living world expandability is a key issue. Living processes are not built on a static platform. Growth is the 'native air' of life. If one designs an infrastructure for life that is static in design, rather than matching the dynamics in life, it is a dead system by design. It is like a nation that is artificially choked to live on a zero-development platform, which dies on this platform. There are far better options available for water-diversion on a continual scale than what is being proposed, which are infinitely expandable, richer to begin with, more rapidly built, and easier to construct, and which are also far less disruptive. And

beyond that there is the question of biological dynamics to consider.

The biological dynamics

A biological system isn't just expressed in in plant growth, climate improvement, and increased power-density of the biosphere. It is also expressed in the usefulness of the end-product, which makes the NAWAPA plan of the 1960s a dead issue. The plan to divert up to 40% of two polluted rivers, isn't easily understood as an improvement of the biosphere no matter how much water is put into the ground that way to make a dessert bloom. The flowers that can be grown with a polluted resource may be useful, but what about the food grown with polluted waters, especially if the water is not drinkable.

A third of the diverted water under the NAWAPA plan is to come from the upper catchments basin of the Yukon River. The water of the Yukon River is presently considered undrinkable. One reason for this might be that a major part of its catchments basin was the center of the famous Klondike gold rush and for a hundred years a center of gold mining afterwards that had been kept alive by the high price of gold. That's hardly a fit source for water diversion, much less a platform for building a giant reservoir on.

The second source, the Mackenzie river system, that is stated under the plan as a supplemental supply is known to have a mercury pollution problem. The two lakes that are the major contributors to the Mackenzie River, the Great Bear Lake and Great Slave Lake, are both mining centers, such as Yellowknife, the Diamond Capital of the region, and Port Radium, the once famous radium capital, and more recently a uranium supplier and supplier of silver. It was monetarist greed, and the monetarism of empire itself, that has 'killed' these two rivers. It is unknown to what degree the source of this pollution can be bypassed by selective sourcing for the supplemental input from the Mackenzie tributaries to the planned NAWAPA project.

Of course, mayor efforts are possible to clean up the pollution in the chosen catchments area, the uncertainty, however, that these efforts will succeed, rather than aggravate the problem, is a factor that raises questions about the viability of the total project. At the present, the pollution of the northern rivers doesn't pose a significant problem as their waters get dumped into the oceans. But the pollution could have a significant accumulative long-term impact if it was to be used as a feedstock for the irrigation of food crops, as it apparently intended.

For example, the mercury accumulation in whales feeding near the outflow of the Mackenzie River, in a recent test, turned out to be far greater than expected. It is difficult to determine what the long-term accumulative impact of potential mercury pollution would be on the food chain.

It was apparently this nagging pollution issue that brought the pipeline option unto the table in the 1970s, as an assurance that no additional pollution would be picked up by the water on the way south along its 2,000 to 3,000 miles journey to its destination. A submerged pipeline project was proposed to deliver the Yukon River's water to the South in a sealed containment to prevent further pollution. But this option too, wasn't implemented, obviously for the simple reason that diversion of undrinkable water doesn't make a great deal of sense when the goal is to improve the bio-dynamics, instead of taking it down a notch.

The hydraulic dynamics

A few "mechanistic" factors enter here as well. The great water diversion project in China, for which the construction is about to be completed, utilizes the natural dynamics of hydraulics. Its source is located at a high altitude in the Himalayas, and its destination is located in the low lands of the arid north. The entire water diversion of the great project is entirely powered by gravity. All the rivers in this water diversion system are flowing downhill. NAWAPA in comparison, is centered on a plan that forces the waters to flow uphill. Its source is located at low altitudes (1/3 of it at 1,200 feet, and 2/3 at 500-600 feet), while the destination is located at high altitudes (typically 3,500 feet). While such a reversal of the natural dynamics is possible, it takes a lot to power to force rivers to flow uphill. It takes a minimum of 0.75 GW of power to force a flow of 1000 cubic meters per second uphill by 500 feet.

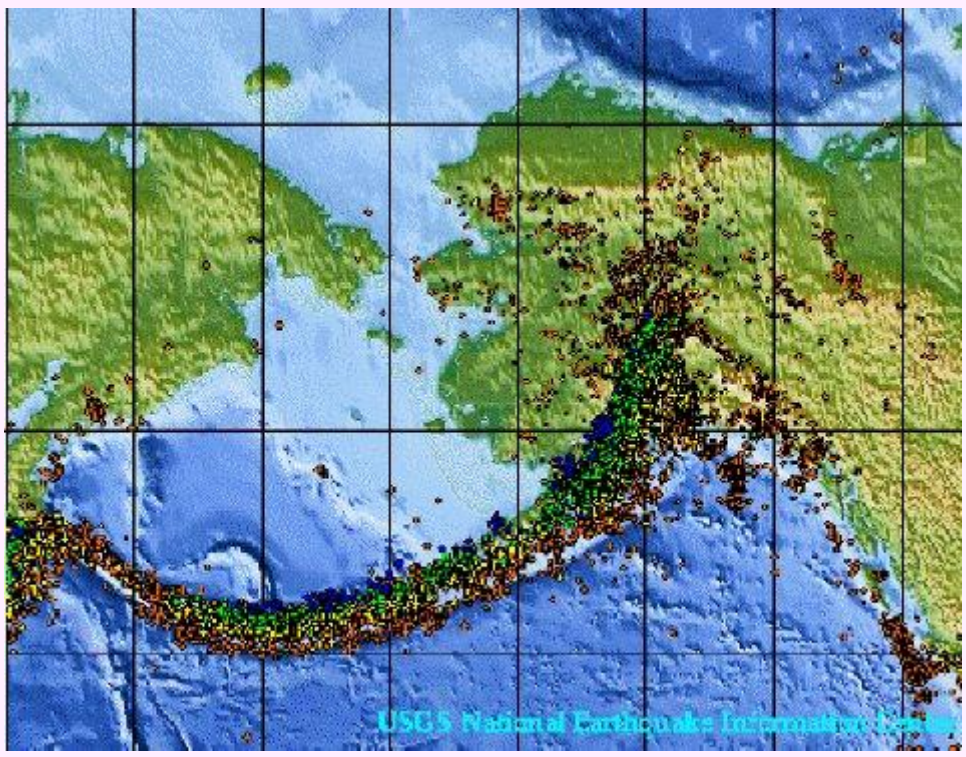
Since the rivers flow only for 5 months of the year in permafrost country, when the watershed isn't frozen,

three times the yearly average flow rate occurs therefore all concentrated into the short time frame when the surface of the watershed is not frozen over and melt-waters begin to accumulate, fed by 7 months of accumulated snow that is melting, mixed with rain. The flow-rate for the NAWAPA requirement then becomes a whopping 20,000 cm/s - constituting a river as big as the Columbia and Mississippi Rivers combined. This briefly available huge flood of water, then needs to be pumped uphill into the high reservoir located several hundred miles to the south in the Rocky Mountain Trench. Along its journey from the source to the reservoir, an uplift of roughly 2,300 feet on average is required, requiring 70 GW (or 70 nuclear power stations of 1 GW each) for the total uplift.

The enormous figure of 70 GW is based on China's Three Gorges Dam that generates 22.5 GW at its maximum water flow-rate of 30,000 cm/s (or 0.75 GW per 1,000 cm/s) With the natural inefficiencies considered for the reverse process, as inefficiencies are inherent in every type of energy conversion, the real power requirement for the NAWAPA project would be most in the 100 to 140 GW range depending on the efficiency factor (requiring 100 to 140 nuclear power station to drive the process.) About 10% of that power might be produced by hydro electric development of the remaining volume of the Mackenzie River, although nuclear power would be more efficient.

The NAWAPA planers came up with a solution to the problem of having to deal with the large flow differential between the frozen season and the flooding season. The solution is to flood the entire upper Yukon catchments area with a 900 foot dam across the river south of Dawson City, creating the largest reservoir in the world, raising the water level across the huge flooded area to 2,100 feet, and providing for a steady rate flow for the diversion project. The dam would be almost twice the height of the Great Pyramid of Egypt). Other giant reservoirs would be built that would flow into the great reservoir. One of these would flood the lower elevation Copper River basin behind a 1,700 foot high dam (a dam slightly lower than the World Trade Center Towers built on top of the Great Pyramid, or 3.5 pyramids stacked on top of each other). The great dam would raise the water level to match that of the Yukon River Reservoir. In reality the dams would need to be still larger when the foundation to bedrock is included after clearing away the permafrost (Dawson City is built on permafrost). By building these enormous dams, with the flooding of gigantic areas, a steady flow rate would assured, and from a much higher elevation by which the subsequent uplift of this source could be accomplished with only 7 GW. The difference of the power requirements is achieved through the dynamic uplift of the system by the power of the infrastructure.

When built, the collection system would likely constitute the largest civil construction achievement of all times. But not all is golden that shines. What cannot be known, is what effect the weight of the dams and the 4.5 billion acre feet of water in the reservoirs (5.5 trillion tons), combined with the melting of the permafrost under the reservoirs, will have on the geologic substructure in the high plateau area, especially also considering the high seismicity of Alaska in and around the project zone. Building a gigantic dam in an unstable area, with a 1,700 foot-high wall of water pushing at it, is not without considerable risks, and so is the risk that the return of the Ice Age (that may have already begun) obsoletes the project before it even completed.



Seismicity of Alaska: 1975 - 1995

The difference between the Chinese water distribution system, where the waters flow downhill, and the NAWAPA system where the waters are forced uphill, is a small mechanistic difference, though this difference has a huge impact on the dynamics of the total system. Also the original plan was based on a much lower volume to be transferred (100 MAF/yr), and a large chunk of that volume would have from an even higher source-altitude (elevation 2,830 feet), from which it would have required an even more minimal uplift. When this resource became unavailable in the early 1980s, the hydraulic dynamics became radically changed. In fact, the hydro-dynamics of the thereby resulting system has so radically changed since the Peace River hydroelectric dams were built that we are looking at a totally different economic concept now, requiring a greater volume to be uplifted from other sources that are far less efficient.

Another factor that stands against the giant 1960's NAWAPA plan, is that the construction time will span several decades (in the 35 to 50 years range) during which time not a drop of water will reach the Mojave Desert or any other destination area, and when the project is completed, it is not dynamically expandable in any significant way.

The reason for the long delay and its rigidity is, that the project is built on low-level technology that is inherently inefficient. Advanced technology and materials offer far more attractive options that could be implemented immediately and be productive in only half a decade, such as moving water in water in submerged distribution 'pipelines' (thin hoses, 50 meters in diameter, made of woven basalt fibers, produced in automated processes). The separation barrier for moving fresh water in sea water requires little structural strength. Large-volume water-transfer projects with zero elevation differential and only small amounts of power needed to motivate the flow, can be rapidly implemented on this basis and bring locally available water resources to the most critical areas almost 'instantly' and at a far greater volume than the low-technology options offer, and with near zero risks involved. Tweaking the NAWAPA plan on this basis might get us the instant results that would inspire the nation to carry the momentum forwards towards ever-greater achievements, such as greening the Nevada Basin, the beyond that, the Sahara.

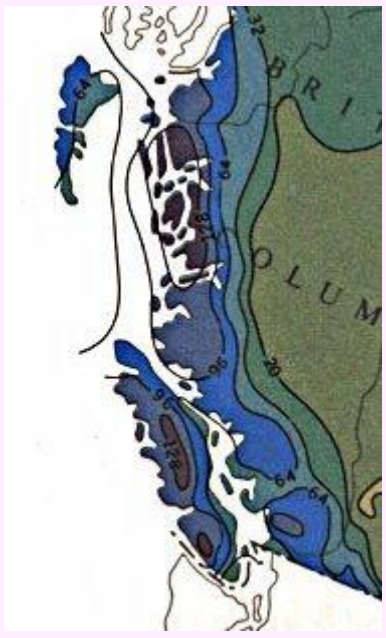
'Tweaking' the plan

One would 'tweak' the plan, when better options are available. This would mean scrapping the Rocky Mountain Trench transfer-scheme in favor of efficient options.

Consider, for example, the option of diverting the outflow of the Columbia River south the San Francisco, or to Los Angeles, via a submerged 'pipeline.' From there, a nuclear pumped distribution system would 'irrigate' the Mojave Desert and turn it into an oasis all the way to Lake Mead, with extensions north into the Great Nevada Basin and possibly as far beyond it as southern Oregon, and of course also enhance the California Central Valley.

The initial project would require only a tiny uplift with nuclear power to get the water through the Central Valley south, or directly into the Mojave dessert. In either case there is would be no great differential in altitude between the source and the destination, while the result of bringing a volume of 7,500 cm/s of water into this parched land, with extensions south into Mexico, would be so powerful that it would be visible from space and have an immediate enriching effect on the land around it. It might even eliminate drought conditions on the Texas High Plain, etc..

Such a system, as the start of a real NAWAPA plan could be easily constructed, and would deliver more water to the critical area than all the waters presently envisioned for the entire NAWAPA plan, and it would be in production much more rapidly. Also it would be readily expandable since the West Coast mountains all the way up the Canadian coast offer the highest annual precipitation rate on the continent, which have quite a few major water resources available, many of then small, but large in combination.



These rather rich resources are presently flowing into the Pacific unused, but could be easily added to the by then existing, submerged Pacific Coast Water Transfer System.

With the expansion of the oasis building process reaching far into north of Las Vegas into the Great Nevada Basin semi-dessert area, all the way up to southern Oregon, additional water might be required, that might by brought in by linking the West Coast distribution system, across Panama or Nicaragua, to the Atlantic Distribution System that is powered by the Amazon, the Congo, and the Orinoco Rivers (Venezuela). On this route too, no intermediate uplifts are required, apart those imposed by the destination altitude.

With the availability of near unlimited water resources by this supply channel, the entire interior between the mountain, from Mexico all the way up to Canada, could become a powerful food growing engine along the model of the California Central Valley, and the California 'water wars'.

What evidently appeared impossible in the 1960s, is now possible with advanced materials, processes, and energy technologies, in the light of which the old NAWAPA plan appears increasingly archaic.

The much more powerful outcome that is derived for the entire biological and human system, by this method, is determined by the question of dynamics. The advancing power of technology alters the dynamics of the processes. The Western region has thereby the potential of a dynamic system with near unlimited scope. It implementation of it would be enabled by the presently existing and demonstrated high-end technological potential of basalt-based construction, materials, and high temperature nuclear power.

It is a question of natural vs. unnatural dynamics

The practice of pursuing unnatural dynamics has become rather common in the modern world, with a horrific waste in human potential being experienced. The quest for nuclear power is a case of this type, as exemplified by the CERN, ITER, and NIF projects. Here the objective too, involves forcing 'rivers to flow uphill.' Whatever power is realized in fusion-power experiments is not the result of fusion, but results from fission that enables the fusion. The resulting process is deconstructive, entropic in nature, and totally unnatural.

The experimental fusion-power process disassembles one of two highly charged isotopes, whereby power is released. The highly charged isotopes, of course are rare. One of them exists in seawater, but in such low quantities that it requires the energy intensive processing of more than half a million tons of seawater to obtain enough of it (deuterium) for single ton of fusion fuel. The fusion fuel requires also second isotope (tritium) that is even harder to get. It is manufactured from lithium in nuclear reactors. The process of production is so slow that since 1996 only a quarter ton of tritium has been produced worldwide.

Now compare the huge difficulty on obtaining the fusion fuel with the fuel-resources for the already

demonstrated and highly efficient high temperature thorium nuclear power reactor. For this reactor type over 900,000 tons of fuel are sitting unused on the ground in the USA alone. Then consider further that the power flux density by ton of this fuel is identical to that promised by nuclear fusion, which cannot be made to work.

In considering the comparison results, which system would be the most rational to be used as a dynamic capacity to place an economic recover on? For thorium power, the technology exists and has been proved, while for fusion power the process is inherently impossible. Wouldn't one choose thorium power then? The economic recovery of America and the world is not possible without vast amounts of nuclear power. Not even the NAWAPA plan can be run without it. The answer is obvious then, but the obvious isn't happening. It isn't happening for the same reason why the impossible version of the NAWAPA plan is currently preferred, even while it offers an outcome that is "too small for a mouse."

A real NAWAPA plan would be based on the utilization of natural dynamics and natural technologies, such as the processes that offer the highest energy-flux density in terms of practical results, including the human elements. Sure, make-work projects use up vast amounts of manpower and resources, as such projects are typically based on low-level technologies with little humanist energy-flux density being realized in the results. A real recovery would therefore have to begin with the large-scale production of high-technology processes, such as constructing industries for the mass production of nuclear power and high speed rail transports as a first step to eliminating the choke points that presently throttle the biosphere development of the continent. The choke points are wasteful technologies, such as windmills, waterwheels (hydro power), and river barges.

Interlocking dynamics

One of current NAWAPA proposal is to use some of the pump-lifted water from the arctic to irrigate a 35 miles wide strip of land stretching south for a distance of 1800 miles across the Great Plains west of the Mississippi, cutting across an area that is presently not irrigated and is 4 times larger than the Central Valley in California.

But would the resulting biologic uplift be worth the effort involved, such as forcing large volumes of water to run uphill into the high areas of the Great Plains, driven by many tens of giga-watts of nuclear power? The affected area, a 35 mile wide strip across the land, wouldn't be more that a line drawn across the map with a fine-point crayon - "a crumb too small for a mouse."

Wouldn't it be a far better option to uplift the entire area with a far-flung irrigation system that uses the local water resources that already exist at these high altitudes in the form of rivers? This existing water would only need to be developed with infrastructure and be distributive across a wide network that could be powered by minimal amounts of nuclear power for the distribution flow? Not a single drop of arctic water would be needed for this vastly larger biological development, by using the area's own dynamics. The Great Plains region has 17 rivers running across it, coming out the foothills. Nearly all of this water drains into the Mississippi, which in turn dumps altogether 12,700 cm/s of unused water into the Gulf of Mexico. Is this huge outflow really needed? Wouldn't the water be better used in the high source areas?

What would happen if all the waters that flow across the Great Plains were retained there and be distributed for irrigation? The biological power of the entire region could be radically improved, and not just along a 35 mile wide strip, and this with just minuscule amounts of nuclear power to power the distribution network. Wouldn't this kind of project make a lot more sense than bringing in a 'trickle' of water from 2,000 miles away, forced up hill 2,500 feet with massive amounts of nuclear power driving it?

The only people that would be adversely affected by retaining the water in the source regions where the water falls as rain, would be the water-wheel (hydro power) operators, and the river-boat operators, who both depend on large rates of flow in the rivers. However, those 'industries' should have been retired ages ago. The continuance of the age of the 'Volga boatmen' is not justified in the age of electrified railway transportation. (Water transport requires one-and-a-half times as much energy than rail transport and is slow and cumbersome.) Also the age of the 'windmills and water wheels' (hydro power) should have ended long ago.

Hydro power is a waste of life resources that is not justified in the nuclear age. Thus, by radically upgrading the transportation and energy infrastructures of the continent, large water recourses become freed up for living processes that vastly increase the productive energy of the continent. A real NAWAPA system would therefore include the radical upgrading of the nation's transportation and power infrastructure, including the very concept of power generation itself.

The only choke-point for this vast and long overdue economic and biological upgrading of the country, on the scale that is required, would be the shortage of manpower and industrial capacity. No make-work programs are needed to instantly end unemployment in North America (including Canada and Mexico), which is presently a deadly epidemic in many regions, cutting across the whole of society.

When the interlocking dynamics are considered no part of the old NAWAPA plan makes any sense. For example, the original NAWAPA plan envisioned for Canada the building of a 30-food deep canal across the Canadian prairie, both for irrigation and river boat traffic, and also for water-transfer into the Great Lakes to 'flush out' its pollution. Apart from the fact that the envisioned major waters source at a high-altitude (2,830 feet) is no longer available for the canal, as it became diverted to hydro-electric power development, the canal idea becomes further unjustifiable by the fact that the canal's water would still have had to be pumped up twice beyond its once envisioned high source-elevation.

And why would one need the canal anyway, when the local resources for irrigation exist all across the country, that can be distributed with minimal nuclear power. The utilization of nuclear power changes the entire development dynamics, as the needed power can be applied directly were the local resources are located.

Here the case illustrates that a small change in the dynamic environment can have continent-wide effects without mega-projects that typically demand huge human resources that thereby becomes unavailable for many vastly more-productive and intelligent uses, which in the end are also more efficient for upgrading the power of the biosphere. Low-technology projects are degrading.

The most dramatic degradation of the dynamic power of human labor and the resources of the biosphere is the bio-fuels insanity. It makes absolutely no sense at all to build upwards to 140 large-scale nuclear power plants in the permafrost region of the high arctic to pump water uphill for 4-5 months to a height of 3,000 feet at a flow-rate that equals the combined average out-flow of the Columbia River and Mississippi River, and then pump a portion of this 'laboriously' created high-altitude water (polluted as it may be) into a region that is flush with water itself, but which wastes its water resources not only on archaic 'waterwheels' and 'river-boat' games, but is increasingly 'burning' it. - Yes, large floods of water are being 'burned' every day. For each single gallon of ethanol that is being produced, 95 gallons of water are required for the distilling process that turns high-grade food resources into alcohol (ethanol) that is used for diluting gasoline (ethanol produces 39% less energy than gasoline).

The gross insanity in this scheme produces an over-all energy loss for the entire system that in some cases is as high as 30% (instead of the energy gain that is advertised by not accounting for the cost of the inputs). A serious consideration of the NAWAPA concept would go a long way towards shutting the entire bio-fuels insanity down, which presently by law, demands the large scale 'burning' of food and related resources.

And the effect of this insanity is huge. The U.S. ethanol production exceeds 9 billion gallons a year (17 billion worldwide - according to 2008 figures). This insanity takes 20 million hectares of (mostly irrigated) farmland out of food production and diverts it to growing the feedstock for the ethanol plants. In addition, it takes close to 100 billion gallons of water to run the stills that brew the gasohol, which is likewise diverted away from agricultural uses. The vast farm acreage diversion alone (not even counting the water diversion) would normally feed 40 million people. The resulting huge waste of the power of the biosphere, expressed in agriculture, is economically insane, while the underlying commitment to burn food on this vast scale constitutes a crime against humanity in a world that has a billion people living in chronic starvation of which untold millions are loosing their life every year as the result of it. The end result is a crime that pales the Nazi holocaust. And the end product, for which this huge sacrifice is demanded, is a motor fuel that is expensive to produce, is corrosive to the fuel system of the cars, and generates an over-all energy loss of

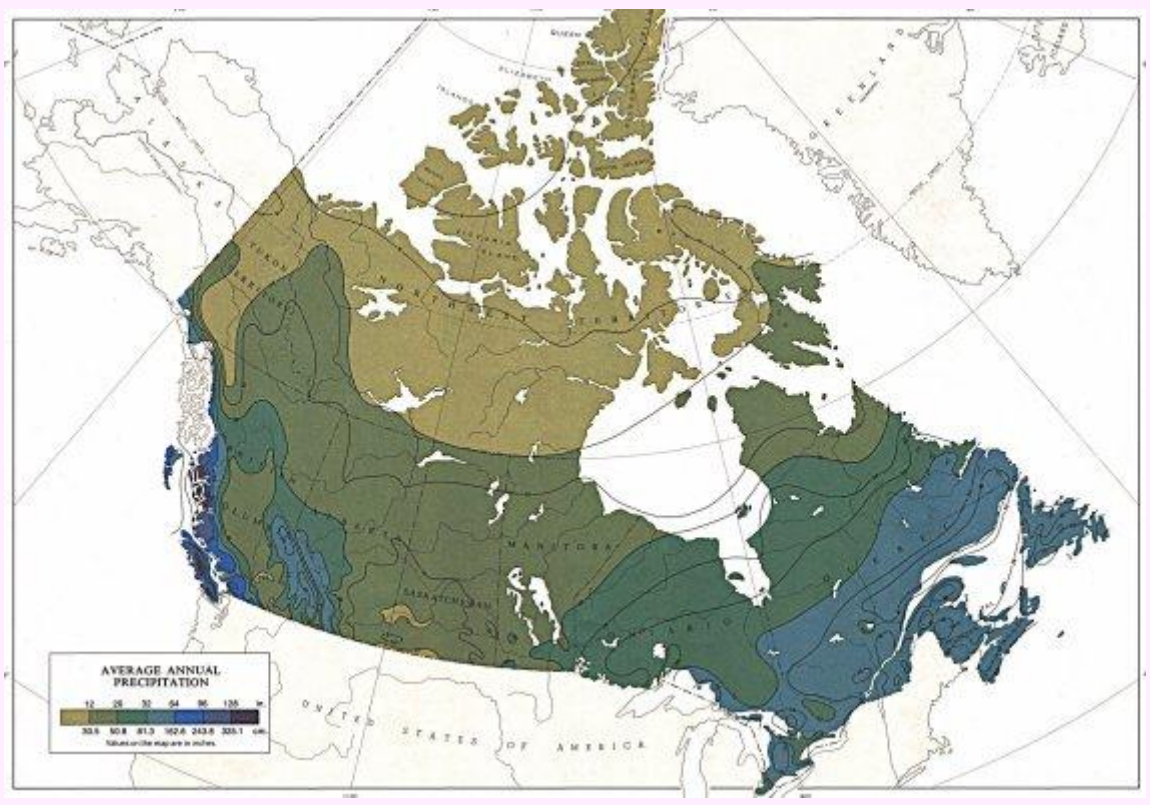
roughly roughly 30% (estimated in the range of 160 billion kw/hr/yr, the equivalent power of 18 nuclear power plants of 1 GW each).

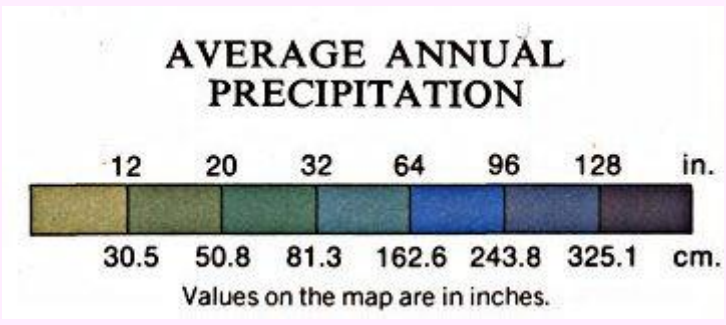
The needed, real NAWAPA focus, that focuses on increasing the productive dynamics of the biosphere as a complete comprehensive system, would inherently end the currently wide-spread insane waste, including the wasting of society's human resources that is currently carried out on a large scale by the killing of people with poverty and starvation, caused by low-technology games. Sadly, the effect of this murdering in terms of lost human power is not even counted as a factor in the energy equations, not withstanding that the human resource is mankind's greatest potential and the only source of its productive wealth. In this context a real NAWAPA project that maximizes the efficient use of the productive power of human labor would have to spearhead the wider recognition of the great value of mankind as the only wealth-producing-and-increasing engine that exists on this planet.

Worthy of the name NAWAPA

The name NAWAPA would then be seen as the new NASA in the biological realm. NASA's biggest impact on society is that of it being a high-technology driver that is enabling the kind of technologies that routinely make the impossible happen. In this context NAWAPA should be focused to become a high-technology driver that defines infrastructure in a new way as a component of a development concept that increases the power of an entire continent, including the efficient use and development of the human potential. This thrust would interface the greatest potential resources with the very large projects for which great needs exist, like the need to rejuvenate the Great Lakes system in terms of flushing out pollution and bringing a rich fishery back.

This goal could be easily achieved. All that one would need to do is build a submerged collection system and reservoir throughout the lower Hudson Bay and James Bay area (the southern tip of Hudson Bay), to create an enormous water resource for the entire continent, drawn from a high-precipitation watershed, instead of from the dry north as it its currently envisioned.





Whatever amounts of water it would take to flush out the Great Lakes would then be made available by this system. A 'short-distance' pipeline with an uplift of only 600 feet would be required for the process, and this uplift is miniscule in comparison with the present NAWAPA plan for the Great Lakes region. In this manner

the created resources would be matched with the dynamics of the need.

Presently it takes 130 years for Lake Superior to recycle its water. The same might be accomplished in a decade with the waters of James Bay, fed into the lake with minimal amounts of nuclear power driving the entire system.

Of course, the advantage would not stop there. The major rivers flowing into Hudson Bay could be diverted for an additional inflow into the new James Bay Lake. This would be done with a submerged water transfer system that would by then be typical for the new NAWAPA system that would also spearhead the Atlantic Distribution System for the worldwide diversion of the outflow of the Amazon and Congo Rivers.

Once the James Bay Lake project is in operation, in a very short time, vast amounts of water would become available as needed, for continental distribution, and all this from a 'local' watershed that is larger in area than the Amazon basin (though not perhaps in volume).

The resulting enormous clean water resource, would be sufficient to meet all the present and future water needs of the entire North American continent east of the Rocky Mountain, and this efficiently, reliably, with plenty enough for all times to come. It would be distributed with nuclear power as the need would arise for continental development until the return of the Ice Age disables most of the continent for human habitation, especially the northern half of it. The James Bay source would likely remain operational right through most of the Ice Age transition period, long past the stage when the high northern sources would become disabled.

NAWAPA vs. Empire

The NAWAPA focus needs to take on a global dimension, in the sense that NASA does, for the common welfare of mankind. Without this global focus empire will retain its foothold somewhere and continue its war against mankind on the many fronts it has created.

One of the weapons empie wields in its war, is the "patents" weapon, the privatization of the intellectual power of mankind. For example, the chief reason why the Liquid Fluoride Thorium Reactor (LFTR) is not in use today, is evidently that its design is vastly too efficient. The LFTR is the cleanest, safest, simplest, easiest to construct, and to operate, nuclear-power reactor ever created, with the highest rate of fuel utilization. It requires no pressure vessel, produces no weapons grade products of long-lived nuclear waste, 'eats up' the waste products of uranium reactors, produces high temperature power, and can be scaled to any size, even down to a mobile size. The reactor was demonstrated to have these features, andwas successfully run for five years, and after that it was never heard of again (hardly ever).

The evidence suggests that this nearly ideal reactor technology followed the fate of many a liberating technology. Once a revolutionary technology is created, it becomes patented. The patents then become acquired by the masters of empire who routinely use the intellectual property rights legal system to block the general use of advanced technologies, for its long-standing policy to prevent the self-development of society by all means possible. Thus, the principle of the patent has become a weapon against mankind. Before an advanced NAWAPA (or even the old one) can even get off the ground, the intellectual property rights chokehold needs to be cleared of out of the way. NAWAPA cannot accomplish anything without a massive commitment to the most advanced concepts of nuclear power. If mankind fails to gain its intellectual freedom back from the privatization 'jail', its future is doomed to be dim and rather short.

Oh yes, the Ice Age is a factor

The Ice Age is not a factor that we can afford to ignore. It is vital. It is key to every critical aspect of today's world in the immediate context. It is in fact the key factor for solving the current political and economic crisis that is pushing us ever closer to the brink of a new Dark Age.

The subject of the Ice Age is linked to a unique human quality of immense power, a kind of quality that no other species of life has. This quality is the quality of the human mind that makes us able to 'look' into future and to respond in the present to conditions that are not yet visible or tangible to the senses. All other forms

of life on this planet respond almost exclusively to sensory-based perception. To the best of our knowledge mankind stands alone with its capability see the unseen, and to respond to the unseen as though it was visible.

One aspect of this is unique capability is mankind's capacity to see with the mind the operation of principles that no eye has ever seen, and to understand these principles, and to utilize them. A more advanced aspect of this capability is the power of the human mind to see into the future and to shape its present accordingly. This should be deemed our greatest power. It takes us far beyond the little sphere of sensory perception, into a realm where we become increasingly and uniquely human. Here lies our greatest power, and the more we develop this power, and respond to it, the more powerful we become in solving our immediate problems in the present world.

The lack of progress that we see in resolving our current political and economic problems is evidence of a glaring lack of the development of our humanity - of the power that makes us truly human. The only movement that we have seen on this front in recent years is a movement backwards. We are presently choked by unmet challenges, even of the kind that had been met decades ago rather easily, such as the challenge to oust Presidents that have become traitors, which no longer happens and has become a choke-point.

It is in this context that the Ice Age challenge must be seen, as a training platform to develop the greatest resource we have, which is key to the entire dynamics of our civilization. The key is to 'get real,' to become human, to discover our power as human beings.

Let me illustrate what it means to 'get real' in the NAWAPA context. Consider in what manner the Ice Age Challenge would demand us to respond if it was accepted as potentially immediate.

We know from ice core samples and other evidence that the climate will cool so deeply that the accumulation of snow, compressed into ice, will be so massive that several hundred feet of the volume of the world's oceans would become deposited on land in gigantic ice sheets piled several miles high, with temperatures dropping so low that permanent sea ice would form as far south as Oregon and Washington DC, and winter ice all the way to Los Angeles. (See: Ice Age collapse)

How would we meet the challenge to grow food under these conditions?

As highly developed human beings, we would meet the challenge with powerful advanced infrastructures. We could for example covert the Sahara into an oasis with waters flowing into it from the Amazon, or we could create floating fields spanning the oceans near the equator, or we could create multistory indoor agriculture facilities with optimized environments and growing conditions that might give us a thousand-fold increase in agricultural production per acre, and this totally independent of the climate. With these types of advanced infrastructures in our pocket we would snub the Ice Age with ease, whenever it would begin its next cycle, and we would be living like kings in spite of it. The point is that we do have the potential to do this right now and use these potentials to upgrade our living in the present. And we do have a need for it.

The technologies that a response to the Ice Age challenge would force us into, are already here. We can do all of these things right now, while instead we allow ourselves to be mired in low-level pursuits. One of the chief reasons for us being stuck that way, is evidently the current wide-spread insistence that the Ice Age is far too distant and not worth considering in the present. Thus we loose a portion of the power of our humanity in the mud-hole of primitive pursuits and small-minded sensory-focused perceptions and related objectives. We say emphatically that it is far easier to suffer the pain of our current crisis, than to stir our minds and our stumps in taking action for 'getting real.' We are laterally wasting ourselves that way, in a sub-human mode of living, by keeping our eyes closed and the mind blinded to the future and to our capabilities. On this road of living 'blindly' we may loose our world before the Ice Age even begins, or will surely perish when it does begin and finds us unprepared, undeveloped, and impotent.

From an astrophysical standpoint we have no justification for remaining asleep. The "NO NO" response is simply not justified, unless we intend to be suicidal, one way or another. "Getting real" means starting to live in the real world, the human world, where the dynamics of the future drives the actions in the present. In this sense, "getting real" means getting honest, mostly with ourselves. It means acknowledging and developing our

humanist power.

The Ice Age potential merely provides the driver for the humanist development. If the radical development of our humanist power is necessary in the future, for which powerful technological platforms are required, which we already have the capacity to implement, why would we wait until we are forced to act under catastrophic circumstances? Why would we not want to enjoy the powerful benefits now that we are capable of creating? For all we know, the Ice Age may be far closer than we think.

Sone credible evidence to consider

Professor Zbigniew Jaworowski, M.D., Ph.D., D.Sc., a world-renowned atmospheric scientist and the chairman of the Scientific Council of the Central Laboratory for Radiological Protection in Warsaw, a man who has personally examined the long-term evidence in excavated ice from 17 glaciers on 6 continents during his 50-year career, tells us that we may be closer to the next Ice Age than we generally imagine: He writes:

"The climate is constantly changing. Alternate cycles of long cold periods and much shorter interglacial warm periods occur with some regularity. The typical length of climatic cycles in the last 2 million years was about 100,000 years, divided into 90,000 years for Ice Age periods and 10,000 years for the warm, interglacial ones. Within a given cycle, the difference in temperature between the cold and warm phases equals 3°C to 7°C. The present warm phase is probably drawing to an end—the average duration of such a phase has already been exceeded by 500 years. Transition periods between cold and warm climate phases are dramatically short: They last for only 50, 20, or even 1 to 2 years, and they appear with virtually no warning.... Some climatologists claim that this will happen in 50 to 150 years....

The approaching new Ice Age poses a real challenge for mankind, much greater than all the other challenges in history.... An eventual drift into Ice Age conditions appears inevitable. These conditions would render a large fraction of the world's major food-growing areas inoperable, and so would inevitably lead to the extinction of most of the present human population.

The key to this, as he sees it, is not located in cycles that affect the exposure of the Earth to the Sun, but is determined by the dynamics that govern the Sun itself. He tells us:

Observations in Russia established a very high correlation between the average power of the solar activity cycles (of 10 years to 11.5 years duration) and the surface air temperature, and "leave little room for anthropogenic impact on the Earth's climate." Bashkirtsev and Mashnich, Russian physicists from the Institute of Solar-Terrestrial Physics in Irkutsk, found that between 1882 and 2000, the temperature response of the atmospheric air lagged behind the sunspot cycles by approximately 3 years in Irkutsk, and by 2 years over the entire globe.

The current sunspot cycle is weaker than the preceding cycles, and the next two cycles will be even weaker. Bashkirtsev and Mishnich expect that the minimum of the secular cycle of solar activity will occur between 2021 and 2026, which will result in the minimum global temperature of the surface air. The shift from warm to cool climate might have already started. The average annual air temperature in Irkutsk, which correlates well with the average annual global temperature of the surface air, reached its maximum of +2.3°C in 1997, and then began to drop to +1.2°C in 1998, to +0.7°C in 1999, and to +0.4°C in 2000. (21st CENTURY Science & Technology, Winter 2003-2004)

Is Professor Zbigniew Jaworowski right?

It appears that he was miles ahead of the field when he said the above. It has been increasingly recognized on recent years that Ice Age cycles defy the mathematical calculation based on the Milankovitch Cycles theory of long-term cyclical variances of the orbit of the Earth around the Sun, which cause seasonal and hemispheric changes of the Earth's exposure to the Sun.

The problem with the related mathematical calculations is, that the Universe doesn't comply with the calculated conditions, which renders them to be subsequent, 'following' a larger cause, such as the changing

electro-dynamic conditions that affect the processes that power the Sun and the intensity of its activity cycles. With the Sun being electrically powered, according to the leading edge evidence in the Universe, Jaworowski's observation are thereby fully supported, that the climate changes are driven by what affects the Sun.

His perception, that the most important among the "greenhouse gases" is water vapor, which he says is responsible for about 96 to 99 percent of the greenhouse effect, and is affected in large measures by changes in cosmic radiation, also agrees with the modern, leading-edge observation, such as the discovery that the heliosphere of the solar system, which shields us to a large degree from cosmic radiation, has been shrinking over the recent decades, with corresponding increases in cosmic-ray flux, increased cloud formation, drier weather, and larger temperature swings in the general climate. Considering all of these wide-ranging agreements, Jaworowski's observations appear to be far from groundless and should not be ignored as though coming from a babbling fool.

More recent discoveries suggest that the actual temperature swings, especially in the transition period, may be much larger than previously believed, with temperature differentials reach far below the present, as low as the 15 degree below the present. That's huge, considering that the last Little Ice Age resulted from a mere one degree drop below the general average. (see details).

Sure, the modern tendency is to ignore what is 'inconvenient' to deal with. Except, who is the fool in this case, when the potential is ignored that the shift from warm to cool (interglacial to glacial) climates might have already started (see above), when it turns out that the warning was right and has been ignored. The sort of tragic thing happens far too often, as in the case of LaRouche's economic forecasts based on scientific evidence. The world calls him a fool and pays a heavy price for not responding to his warning. The life of millions could have been saved with a timely response. In many respects the response is still outstanding to his economic warning, even while the world is rapidly collapsing towards a new Dark Age.

The danger from being fools

The danger from not responding to the potential that we may be already in an Ice Age transition period, is that the Ice Age may find us unprepared when it comes upon us, which is a gamble that we cannot afford considering the consequences that would then pale the worst in history. If on the other hand we would err on the side of caution, we would have lost nothing by this error, even if the Ice Age not materialized for a thousand years. We would have merely experienced the greatest renaissance of all times a whole lot sooner, before it was required.

It is obvious which of the two above option is the better choice, and the nature of this choice must shape the NAWAPA project. The project needs to be tailored towards the implementation of the kind of humanist power that we much achieve, and have the capacity to achieve. With the Sahara fully transformed into an oasis that may take quite a few decades to accomplish, and Africa with it; and floating agriculture to being more widely implemented near the equator; and the technology of indoor agriculture becoming widely implemented as well, the return of the Ice Age wouldn't touch us no matter when it came. The greatest benefit from the NAWAPA project would be in the present, and would put us into the direction towards where we need to be.

Political and economic alliances would then become easy with a focus on something real. Russia, China, India, Canada, Europe, the USA would eagerly participate in multifaceted food-technology projects that would secure their futures and meet their present needs. The NAWAPA project with a strong Ice Age focus would provide the widespread cooperative platform that would bring the world together and to its sense on a practical basis, setting up a stage that is two steps beyond what Franklin Roosevelt had envision and which no one has ever achieved.

NAWAPA with an Ice-Age focus

The whole world would benefit immensely from a strong focus on the potential of a new Ice Age.

Consider for example the challenge involved in revitalizing the Sahara in Africa with the goal of turning it into a vast oasis. In the process of pursuing this project mankind would likely discover a new power source that would obsolete all electric power systems that are in operation the world today, including those that have not been built yet. The evidence for this discovery lays on the ground all through the Sahara.

Sand-penetrating radar images show us ancient riverbeds and lakes now deeply buried below the sand. Where did this enormous pile of sand come from that now covers almost all of the Sahara, with the Sahara covering 3.6 million square miles, an area larger that the land area of the USA? Did this vast pile of sand, with dunes reaching up to 600 feet in height, really result from weather driven erosion as this is generally claimed? For some pioneers in the sciences this long-standing hypothesis doesn't make sense, for if all this sand was caused by weather erosion, why don't we see the same in other parts of the world at the same latitude? There exists no such evidence.

The most recent theory has it that the sand originated from outer space in the form of a comet carrying an enormously intense electric change, which, when coming into contact with the electric layers in the atmosphere surrounding our planet, primarily in the ionosphere, has caused some form of electric-stress disintegration of the comet that thereby literally crumbled into dust, spreading an endless seeming trail of sand upon the land. The evidence thus tells us that our plant Earth is electrically charged with vast stores of electric energy surrounding it, similar to the electric energy that powers the Sun.

The next step from this discovery would involve serious electric space research in order to develop the technology to tap into the galactic energy streams that surround us. We would see the sand then no longer as a nuisance, but as evidence that or planet is afloat in an inexhaustible sea of galactic electric power flowing in electric plasma (all plasma is electrically charged - 99.999% of the mass of the Universe exists in the electrically charged plasma state). This is not a fairy tale. NASA has photographed the evidence. Two bands of concentrated electricity were 'visually seen' spanning the equator. (see: Absolute Power)

The same evidence is also visible everywhere in the Universe once one has discovered what to look for. We see the evidence in fields of stars and fields of galaxies that are neatly aligned into filamentary rows like beads on a string, all neatly reflecting the self-organizing feature of Birkeland currents in which electricity flows in space. Where the astronomer sees networks of galaxies, strung out into lines, the scientific mind sees what the astronomer cannot see, beholding streams of power that keep everything organized in its place.

From the point of seeing, onward, the utilization of what the mind has discovered is but an implementation-step away, whereby the boundless energies of the Universe that lay bare before our feet, becomes accessible for the picking. Once the Ice Age focus begins to stir our humanist creative power into action, far beyond the tales that empire and sensory perceptions put before, the resources that now lay at our feet will become developed as surely as agriculture was developed for which the principle had been laying at mankind's feet until someone took up the challenge to pick it up and create a world of plenty by realizing its promise.

We are back at this again.

Welcome to NAWAPA Mars

oceanites_oceanicus

Please join me for an afternoon tea at the seaside 'lunch-room' on the shores of the artificial lake at the center of the NAWAPA biological research facility on the planet Mars and watch the birds having fun there in 1/10th of terrestrial gravity. The facility would exist for the scientific fun of creating new plant types and species with a higher nutritional power. Mankind's greatest challenge, unrealized to date, is to create a botanical source with sufficient nutritional completeness to be able to bypass the animal-protein link in its food chain. This capability does not yet exist. We still need to kill, to live. Mars offers us a unique laboratory environment where this great challenge may be resolved, which would certainly help us in an Ice Age environment.

Mars offers us an environment that is more exposed to cosmic radiation than we are on Earth. The unique property of cosmic ray particles may have been a key element in the development of life on Earth, weak as it is here, especially the development of intelligent life that we human beings have become, and with our intellectual and spiritual quality as human beings. The ancient pyramids point in this direction. With Mars offering a more intense environment of this potentially vital type of cosmic influx, who knows how far we might yet be able to advance the productive power of the biosphere? We may find a way to create plants that give us all the nutrient we need to be able to bypass animal proteins in our diet, and which can be made suitable for growing on Earth.

Many science fiction stories have been written about planets becoming tera-formed for mankind's colonization. But what would we gain by creating what we already have? Mars offers us more. It offers us a chance to step forward beyond what we have, and pull up the Earth with it. For this, NAWAPA and NASA would melt into one. NASA would get us there and NAWAPA would give us the focus to come out of this effort richer than we may yet dream as being possible. For this we should be able to set up a 'tent' (a glassed-in area) on Mars in a decade, if the Ice Age focus provides us with the incentive to open our eyes. Not having to grow billions of animals so that we can eat them, would certainly make a difference in an Ice Age environment, and of course it would also make a huge difference in today's world.

An I am dreaming? Isn't getting to Mars too huge a challenge? I would say that getting there would become 'easy' if we would banish the notion of entropy. For example, the mighty Saturn 5 moon rocket has consumed 1.3 million liters of liquid oxygen and 800,000 liters of kerosene in 2.5 minutes, just to get us near to low orbit. That's entropic. It's a self-consuming system. But we don't have to go this route. We can travel anti-entropicly. We can move by electric power that we don't to carry, especially in space. Will the solar system being densely populated with great masses of electrically charged particles, we don't have to carry any fuel with us, except a bit to generate electricity for a electromagnetic propulsion system that pulls us along. Of

course, this won't be possible for as long as we believe that there is no electricity in the Universe, or that the moon is made of cheese, and that the only option mankind has, is to live under empire, etc.. Now with NASA already stepping away be from the old notion of entropy, and NAWAPA standing on the horizon, and the Ice Age potential not far behind, doors might open that we don't know yet to exist. The three-day transit time to Mars at the closest approximation, appears quite reasonable therefore, considering the capabilities that lay before us.

So, sitting at the seaside on Mars, I might be asked by someone about how it all started.

Indeed, what would one expect to see happening in the near future right now to get us there? What does it really mean to "get real" in the highest humanist sense?

For a beginning, I would expect to see one profound, amazing thing erupting across the human landscape. I would expect the realization to dawn that there is an Ice Age on the horizon and that the transition towards it might have already begun, which nobody can deny as a certainty. With the immediacy of the potential of this challenge I would expect to see a general realization that we have the power within us to create the technologies and infrastructures that would allow us to face the Ice Age challenge and laugh about it, and that in the process of lifting ourselves up we discover the nature of our humanity and find within it the power to rise above the little nagging challenges that the masters of empire have shackled mankind with for centuries with ever denser entanglements. I would expect to see empires fall in the shadow of this awakening. I would expect to see NASA and NAWAPA playing a leading role in this awakening, as soon as it becomes recognized that the shackles can fall.

At this point I would expect to see a new financial system enacted without empire in the world, with the simultaneous nationwide construction of training centers for the already existing nuclear reactor technology, of the LFTR type, along the line of Admiral Rickover's Oakridge School. I would also expect to see also the immediate construction of demonstration power complexes, several for each site. I would expect to see these used for the development of automated basalt processing technologies, primarily for water transport systems and the automated production of high quality housing. And in the background I would expect to see an industry being build up for the mass-production of nuclear power facilities, high-speed rail transports, and construction equipment for nation-wide infrastructure development. I would also expect to see the patent laws abolished for as long as courts exist by which they become abused. And I would expect to see submerged water transfer systems being set up within a year, one to take the entire outflow of the Columbia River south to Los Angeles and into Mojave Desert and beyond, shared with Mexico, to turn the entire southern region into an oasis within a few years. And as the oasis region would develop, I would expect to see new cities spring up with free housing from automated production, and new industries.

I would also expect that immediate start of a vast infrastructure upgrade across the Great Plains to retain the water resources there for upgrading the biosphere there, such as the waters of the Missouri basin that dumps 80,000 cubic feet per second into the Mississippi River. I would also expect to see the construction of the James Bay isolation barrier to happen as soon as NAWAPA becomes law and Canada agrees to join the New World. And at the same time I would expect to see the development work to begin for the first stages of the Pacific distribution system that would divert the outflow of the Amazon River and the Congo River to wherever water is needed in the world, such as for the greening of the Sahara and other dry places in Africa and Asia and Mexico. I would expect NASA to be tasked with the technological development to access the galactic electric-power resources that surround our planet.

Then, as the infrastructures become built up, I would expect to see two floating bridges being build, from Santiago to Australia and China, and from Florida to Brazil and Africa, and a few smaller ones, all focused on the economic development of Africa that the whole world may depend on some day. And once the bridges are in place, I would expect to see such advanced infrastructures springing up from them, as floating agricultural fields reaching towards the equator and beyond. And I would expect to see the first indoor agricultural complexes being set up. I would then expect to see the entire global human landscape to change. The only thing that I would not expect to see is the building of dams on permafrost for the most inefficient water

transfer imaginable.

In the rapidly developing dynamic landscape of humanist awakening, we would begin to learn the dimension of our humanity that we have never really come face to face with. Unfortunately we are not at the breakout point yet. We haven't even begun to "get real." Instead we cry, "don't make any noise," "don't wake us up," "the Ice Age is still a hundred or a thousand years away." "please let us sleep our sleep of death."

I would expect those saying to fade into the wind.

A poet would write in contrast:

Oh dreamer, leave they dreams for joyful waking;
Oh captive rise and know that you are free;
Oh see the fetters of the ages breaking;
Oh live to ring the bells of liberty.

Rolf A. F. Witzsche

The critic replied:

That is better. I still don't think you get the cultural/political idea of changing the way people think. Nothing but an immediate battle for existence will move the numbers required in the way Shelly discusses in his Defense of Poetry. So, the ice age idea is just not it, especially since we are in a life and death battle right now for civilization itself.

Further thoughts on this issue:

In terms of dynamics, the ice age issue appears to be the number one issue of the entire question involved. The ability of the human being to see beyond the sense limits and determine its needs in the future, and arouse the power in the present, as the future requires, is one of the greatest powers we have. No animal can do this, and we, sadly, say, "don't bother, we don't need this yet!"

It appears that this is the reason why we are stuck in the present and have not gained much ground in resolving our little problems that grew worse and have become an existential crisis. Sure, the political imperatives should inspire instant and decisive movements, but they don't. It appears that politics is for many people a 'religious' issue that is pervaded with far too many 'superstitions,' especially on economics. We have tried for decades to clear the muddy waters.

In comparison with the religion of politics the ice age issue is a clear cut physical one. Its coming. Only the timing is uncertain. And it promises to be more devastating than an economic collapse, because the economic collapse can be reversed, whereas the ice age transition cannot. Nor can the effects be reversed once the transition beings. The only option we have, is to build up our world in the technological direction where we find the power to meet the future needs in an ice age environment, which itself is a gray issue. But we cannot gamble here. And why should we? We have the power within us to meet the ice age challenge with physical infrastructures - not with low-level technology, but with the most powerful technology for which we have the resources on hand, and have the technological breakthroughs already made. We only need to make this our mission. If we develop this power, which is imbedded in our humanity, then we can change the thinking of society in the present from within, at its very heart, and win. We have proved to ourselves for thirty years that a lesser approach than developing the power of our humanity doesn't get us very far. We have been in the existential-crisis mode for too long, on the platform of a "don't bother" approach.

And then there is the moral issue. We don't even know how much time we really have. If we had a thousand years with absolute certainty, than we would have enough room to tinker with low-tech solutions that don't get us very far. But we don't know how close and how serious the challenge really is. It's time therefore to

move in the direction where we can meet our future needs. For all we know, this could be our only hope. If we accept this challenge, then a door is open that has never been open before - to develop the power to meet the future need. This is what my proposal in principle, of the Atlantic Distribution System, etc., is all about.

It takes the kind of technological power that I suggested as possible, like moving large parts of the waters of the Amazon to Africa in the most efficient manner (moving water in water), to make the Sahara productive again. And even then, it might take makind 50 years to get the job done. If we were really serious in North America, we would develop the Atlantic Distribution System right from the start for meeting our own (dynamically growing) needs.

What options do we really have to grow food in an ice age environment? I can think of only three options in principle. 1. To grow food in the tropics with floating agriculture based on the oceans. 2. To develop optimized large-scale indoor agriculture. 3. To develop Africa that has the largest landmass near the tropics. Each of these options will most likely require 50 to 100 years to implement. They probably need to be implemented together. No other basic options do exist, as far as I can see.

If one puts this challenge before mankind, honestly, it has the potential to inspire the realization that anything short of that, just won't do. Then one may expect to see the realization in society that all the impediments, like empire and monetarism, and fascism, simply have to be swept out of the way. In today's world, empire and monetarism are not even recognized as impediments - make money in the market is still sawn song.

Sure, we are in an existential crisis. The reason may be that society has not been challenged for half a century to rouse itself sufficiently to experience the power and the potential of its humanity. For fifty years the common song has been, "don't bother with that." It appears that we need urgently to get away from this song and develop the kind of power that can get us past the chokepoint that has become an existential crisis.

We need the ice age challenge for that. The NAWAPA project should be focused on far more than water, biology, and employment of the masses. It should be driven on a higher platform and for greater imperatives, and be given a new face to actually meet this challenge. The present NAWAPA plan has far too many serious holes in it to be considered a useful element in that direction, and may actually detract from the real challenge. It is a plan developed in the 1960s, with the mentality of the 60s, and for what seemed adequate in the 60s, and also with the technologies of the 60s. But we are not in the 60s anymore. We are facing a whole series of existential crises. And so, the answers of the 60s simply won't cut it anymore.

It appears, the ice age is on the horizon, whether we say "don't bother" or not. The imperative is out of the bag. The world is getting colder; the heliosphere is shrinking; the weather patterns are already all mixed up. Some significant changes are already in progress, and 'small' as they are, the world food supply is already affected in a big way by the changing climate dynamics. The masters of empire may be able to hide the ice age challenge with their global warming song that filled the air since 1974, saying, "don't bother with that" dance to our music instead, however, the world is changing faster than they can tap the tune to keep us spell-bound to their song.

The question that I must ask myself in this light, is simply this: can I afford to remain blinded? Can anyone afford this? Can you afford this? That is why I bother.

Rolf A. F. Witzsche

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