

**Sustainable Architecture**  
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**Lecture – 05**  
**Pioneers of Sustainable Development**

Good morning, welcome back to this online course on Sustainable Architecture. Today in lecture 5 of week 1; we will be seeing or reading about the great visionaries architects as well as non architects, who have worked hard and their revolutions, their thinking, their visionary thinking has shaped the world and also largely what we read about sustainability.

So, in the previous lecture we had seen the different events which have happened through the history and which have shaped what we talked about sustainability today or how we understand sustainability. Today, we are talking about the people, the visionaries who have led to the success of these events and eventually the shaping of the topic of sustainability as we know of it today.

In those times, when these events were happening or when these people were bringing to the fore; some of the issues which were not thought of by then; the sustainability as a term was not even coined and we people did not understand the implications of it that we are seeing today. So, let us go ahead and look at, read about the works and these some of these great personalities.

The way I have ordered are in no particular order of chronology or their qualification or the kind of issues they raised; they are randomly picked and these visionaries are also limited for the given time that I have to take. There are many more people who have been instrumental in shaping the sustainable development; the overall discussion about sustainable development.

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## John Muir



John Muir (1838-1914)

- John Muir (1838-1914) was America's most famous and influential naturalist and conservationist.
- He has been called "The Father of America's National Parks," "Wilderness Prophet," and "Citizen of the Universe."
- Muir's three-night camping trip with President Theodore Roosevelt in 1903 could be considered the most significant camping trip in conservation history.

"When we try to pick out anything by itself, we find it hitched to everything else in the Universe."

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So, the first personality the visionary that we talked about here is John Muir. He was one of the America's most famous and influential naturalist and conservationist. He was a Scottish, he was born-one in Scotland and he shifted to America with his family early in his life. And he had a particular love for the nature and he was a conservationist at the end of towards the end of his life. He is also called the father of America's national parks; he is known as the wilderness prophet and citizen of the universe.

He was the person who was instrumental in protecting some of the greatest valleys of America; like Yosemite National Park. For the first time, he brought to the fore that some of the natural environments, natural areas as they appear as they are must be conserved and that is what has led to the creation of some of the greatest national parks and some which followed after him, but there was a great movement he was the one who had opposed the Governments decision for creation of a dam.

However, several years after his death; after he passed away the dam eventually got constructed and there were different policies which were taken and he considered that decision as a great loss to America's biodiversity and America's natural assets which are there. His greatest achievement was not his greatest achievement, but one of the major eventevent of his life was a 3-night3-night camping trip with president Roosevelt in 1903.

Because of this strip and his discussions with President Roosevelt; the dam project which was submerging a large part of the ~~valley~~ ~~Yosemite valley~~ Yosemite Valley was put on hold and for several years the project was put on hold. However, many years later after Roosevelt was not the president; the decisions were taken, the policies; the new policies were formed.

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Another visionary was Rachel Carson; she was actually an aquatic biologist. She was working in US fisheries and marine department and her PhD was on the use of chemicals and pesticides and their impact on aquatic life; aquatic biota.

Through her research, she found out that the spray of DDT; the wide spray of DDT was causing a lot of biodiversity loss to aquatic systems. Different species of fish and marine life are getting affected by it and it is actually entering the food chain. She was already an established writer; a visionary thinker and writer who was publishing books like *Under the Sea*, *Under the Sea Wind*; these such as; some of these books which were huge success were already published by the time she was writing this book called *Silent Spring* which got published in 1962.

And for the first time this issue of ~~large-scale~~ large-scale DDT spray in the fields; DDT at that time was called insect bomb. So, for the first time she brought to the fore and American people the common man understood the impact of the use of pesticides; specially DDT on human beings. Till then, it was considered as a boon because it would

DDT would kill all the insects and pests and it was helping them have thriving crops and a lot of production was seen.

But after this there was a lot of revolt, there was a lot of opposition from common masses which eventually led to the policy of banning of DDT. This book and the revolution which came across America, from common people also led to the formation of US Environmental Protection Agency; US EPA which is an agency, which is in the forefront of protecting environment in the US and across the world as well.

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The slide is titled "Mahatma Gandhi" in a large, bold, black font at the top center. Below the title is a black and white portrait of Mahatma Gandhi, wearing his characteristic white shawl and glasses. To the left of the portrait, a quote is displayed in white text on a dark background: "Earth provides enough to satisfy every man's needs, but not every man's greed." Below the quote, it says "Mahatma Gandhi, 1958". To the right of the portrait, there is a bulleted list of five points in black text: "• man should be at the centre.", "• A long term view", "• for we owe our debt to prosperity as well", "• judicious use of natural resources.", "• The ecological balance", and "• 'betterment of human life' and 'ensuring fulfilment of basic needs of all human needs'". At the bottom of the slide, there are several small logos and a page number "4" in the bottom right corner.

The next visionary we have is Mahatma Gandhi; the previous two visionaries were largely talking about or focusing on the environment and conservation of the environment. While the discussions and the thinking; the vision of Mahatma Gandhi was of a self-reliant human life; self reliant villages, self reliant settlements where the betterment of human life and ensuring fulfillment of basic needs of all human beings was his core philosophy.

However, at the bottom of it his philosophy was to limit the needs as he said that earth provides enough to satisfy every mans needs, but not every mans greed. So, the policies which he advocated were of self reliance and judicious use of natural resources.

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## Mahatma Gandhi

“Earth provides enough to satisfy every man's needs, but not every man's greed.”

Mahatma Gandhi,  
1958



- 'Gram Samaj' at Local level and 'Sarvodaya' at global level.
- Every member of the society is the trustee of the wealth generated out of the collective efforts of all. He expected that the trusteeship will result into non-violent and non-exploitative socio-economic relations and development models based on production systems centred around the preservation of nature.

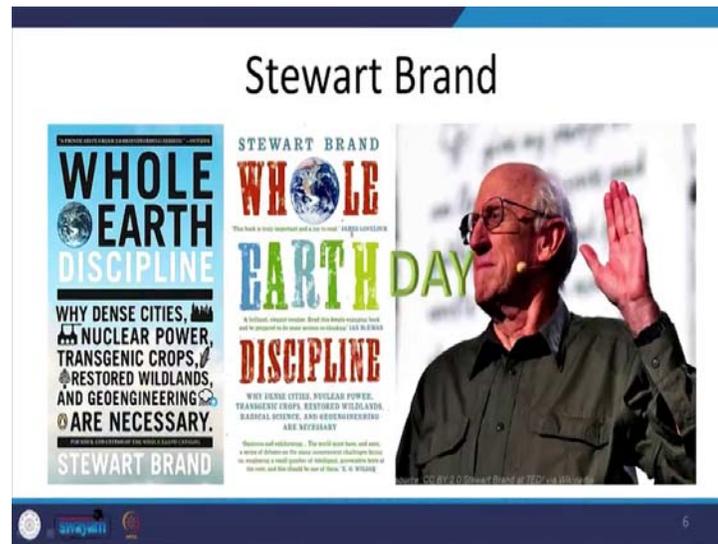
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It is also one of the driving forces behind setting up of gram samaj at local level, gram panchayat in Indian administrative systems which is currently a very strong system of governance.

So, gram panchayat's still playplay a vital role in making our villages self reliant and empowering the local governments. And thereby enabling the local people; the common masses to become self dependent ~~and that is~~ and that is the essential part of sustainable development, where people come to the center of it man; human being human life is at the center of it and betterment of human beings is the most important parameter.

However, at the same time taking care of environment by controlling our needs; by putting our needs within limits. So, for the first time here we see how Mahatma Gandhi advocated all the three dimensions to be brought together society, people, environment and also prosperity; flourishing that is through economy.

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Then we have Stewart Brand; Stewart Brand was ~~he~~ initially served in us navy before; he started working towards environment which was his gradual later interest initially even before he started advocating for protection of environment.

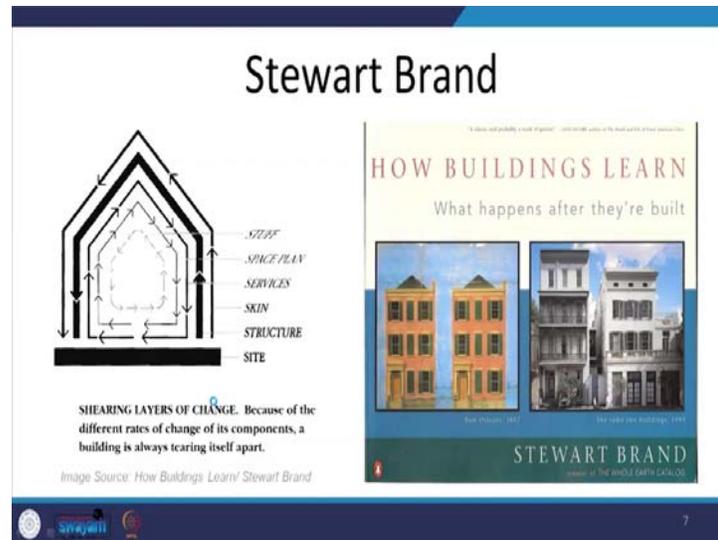
He started demanding NASA for an image of earth as seen from their space; till that time till he demanded we had never seen earth from the space while NASA had already reached the moon and ~~space~~space, they had already sent human being to the space and moon. So, after he started demanding and he was canvassing he was publicizing he started selling small buttons which conveyed the message that we want to see earth as seen from the space as an image and it started growing as a as a motion and people started demanding for such images that was when for the first time a satellite image of earth was shared with ~~people~~publicpeople, public.

And we for the first time saw a blue planet, blue dot from space how it was seen from space and that suddenly revolutionized how people started looking at their own planet, own earth and subsequent revolutions and subsequent movements like the one started by Stewart Brand led to the celebration of the first earth day which we have seen as a historic event. So, his efforts have eventually led to the celebration of first earth day and now today earth day is being celebrated and earth actually got an identity.

The way we attach to our planet as an identity changed suddenly because of the kind of efforts this visionary put in place. At that time, several of his critics were talking about

why at all do we want to see the image of earth how would it change life anywhere here. No, it would not change probably, but it would change the perception of people; today it might seem a very ordinary thing for us because now we have seen earth as seen from the space. At that time, it was not like that and that is what changed the perception of people; that is what great visionaries do.

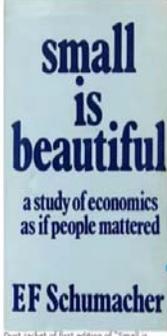
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Gradually, as he turned more of an environmentalist, he was talking about buildings he was talking about cities and national parks and different policies which had an impact on the environment of earth as a planet.

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## E. F. Schumacher



Dust jacket of first edition of "Small is Beautiful", 1973. Source: Wikipedia

Fritz Schumacher was the chief economist at Britain's national coal board, and one of the first people to highlight resource depletion as a threat to industrialisation.

He also criticised the need for continual economic growth and instead proposed new economic thinking focused on human well-being.



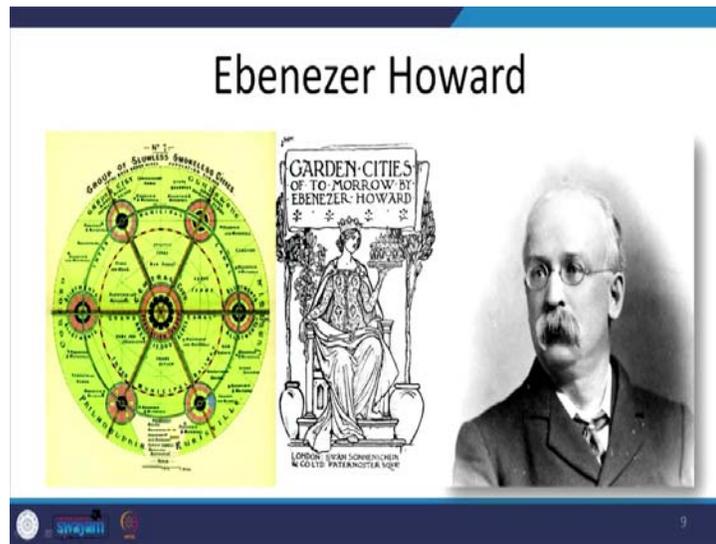
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Then we have E. F. ~~Shumaecher~~Schumacher; he was Britain's chief economist at national coal board. Till that time industrial, revolution had already taken place and industries after industries were being set up across Europe and in Britain. People were more focused on growth of economy and growth of industries; it was a capitalist society, it was a capitalist economy that was flourishing; it was thriving because more and more industries were set up. And till that time the resources had not been consumed at the face which was suddenly; which had suddenly picked up.

He was the first one to point out, the resource depletion as a threat to industrialization and he also criticized the advocacy of continual economic growth which was being pushed in by the capitalists. The capitalists were pushing in for setting up more and more industries and the consumption of the products being produced from those industries required that continual economic growth; otherwise the growth of industries would not be sustained. He was the first one to criticize this need for continual economic growth and he instead proposed that new economic thinking which is more focused on human wellbeing we thought about.

So, for the ~~first-time~~first-time economy along with human wellbeing and also a part of it towards environmentalism; towards concern for environment was being proposed. Now, here despite being an economist; he was talking about the focus on human wellbeing that also changed the way people looked at environmentalism and economy together.

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Then we have Sir Ebenezer Howard; Ebenezer Howard was not a qualified architect or ~~towns~~ planner; yet he designed the one of the most convincing ideas of a Utopian city which we know as the Garden City. He did not ~~published~~ publish much, he was not into the field of planning though towards the later period of his career of his life.

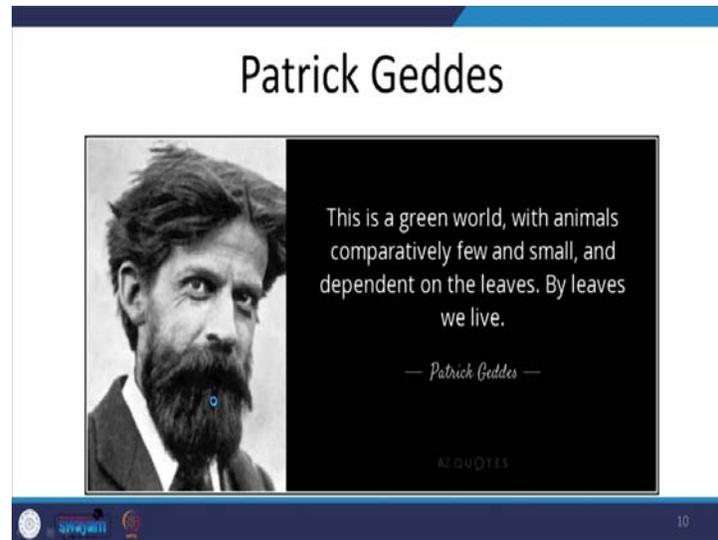
Because of his visionary thinking of a Utopian idea; he had set up a body, an organization with ~~like-minded~~ like-minded people of his times and they went on to set up some of the first garden cities of Britain and also of the world; where they actually demonstrated how a garden city would work. This was at a time when industrial revolution had already taken place and the condition of cities in Europe was declining; the human health was declining; there was no focus on human wellbeing, that was when he had proposed the concept of garden cities which still holds today.

And after he first proposed the concept of garden cities; there have been several such concepts which were proposed by people, visionaries in different periods of time across the world, but the essential concept being of bringing human beings and their built environment settlements in close proximity to nature where they are interchangeably the same thing.

So, the cities; the city actually comprises of settlement which is surrounded by greenery, surrounded by nature, agricultural farm lands, forests, maintained manicured gardens; everything within a city along with the occupied built spaces. So, this was much ~~much~~.

much ahead of its time and they had also proved it through some of the early garden cities.

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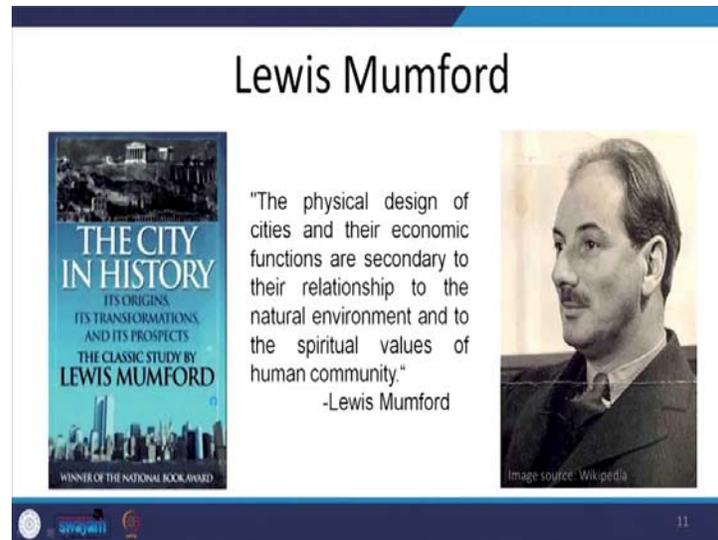
Another visionary was Patrick Geddes; he was a planner, he said this is a green world with animals comparatively few and small and dependent on the leaves; by leaves we live. He advocated the protection of greenery, nature around our cities; more than that he advocated the participation of people towards planning of cities. He advocated that the cities be planned for people and for the first time he advocated for civic surveys.

Till that time, it was around 1880s; till that time civic surveys were not conducted before planning any new city. It was only a geographic survey which was undertaken, there was no need which was felt for bringing in people and what they need; what are to understand their needs and their demands. He advocated that people be brought to the center of it and before any new city is planned; a civic survey be conducted which was a great visionary step towards bringing people to the center of development.

Another thing that he advocated was he advocated for a regional plan; instead of planning for cities, the limit of cities he advocated for planning of a regional region; a regional plan be prepared where our vision he advocated for the vision to be a long term and large spaced vision; not confined to a small physical area like a city.

Through that; though it was not initially done like that though he advocated, but over years we have seen that we advocate today the making of a regional plan before any development takes place and that is what governments and organizations across the world are now doing. So, he was a great visionary who brought people to the center of cities or urban development.

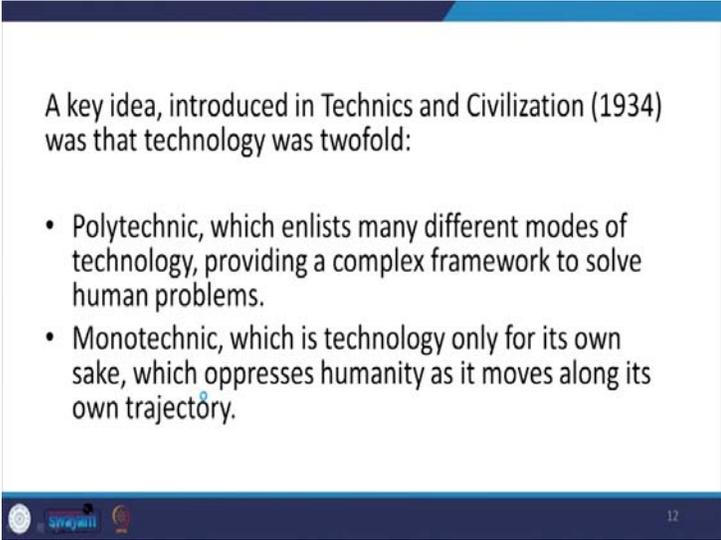
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Patrick Geddes inspired Lewis Mumford; the writings of Patrick Geddes and his philosophy, his philosophy of bringing people to the center of cities and urban built environment was what inspired Lewis Mumford; who was a planner, who was a town planner. And he criticized he departed from the idea of the British idea; colonial idea of very planned cities. He criticized that idea by saying that this kind of a planning a gridiron plan is required for military camps, for increasing the speed of movement to help better navigate.

However, such cities which are too planned are not people friendly ~~city~~-cities. People must be allowed to develop their own cities and they must always be organic in nature. The street how the streets develop, how the streets moved within the city, how the squares happened; they should all be organic depending upon what people want and how people have been living and how people want to live. So, he further advocated the idea of Patrick Geddes.

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A key idea, introduced in *Technics and Civilization* (1934) was that technology was twofold:

- Polytechnic, which enlists many different modes of technology, providing a complex framework to solve human problems.
- Monotechnic, which is technology only for its own sake, which oppresses humanity as it moves along its own trajectory.

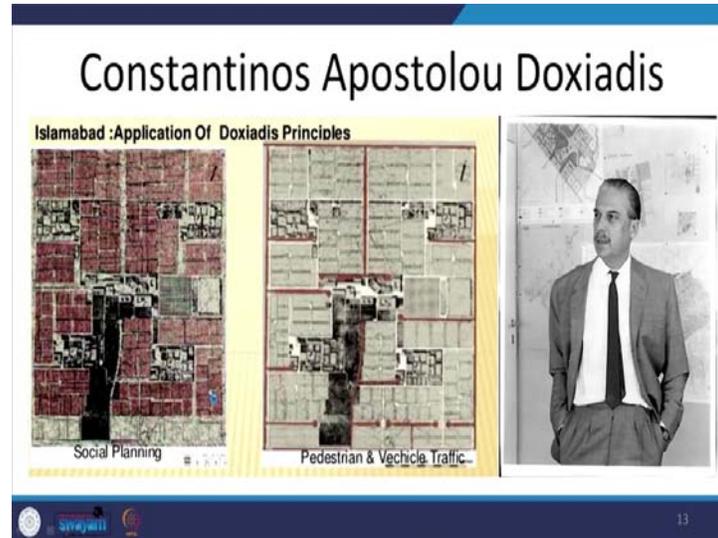
Lewis Mumford also introduced in his book *Technics and Civilization* the distinction of technology. He differentiated the technology as a two-fold technology one which was polytechnic which enlists many different modes of technology providing a complex framework to solve human problems. However, the other type was mono technique which is the technology only for its own sake which oppresses humanity as it moves along its own trajectory.

It is quite difficult to understand here, but mono technique by mono technique, he took an example of the kind of transport systems which were being advocated in USA; which were largely personal car based. Now, there he said that the increased use of personal car for travel; for movement has pushed the pedestrians, the bicycle riders to the core and all other means of transport to the sides where there is no space for them; this was long back when American cities were being planned when American highways were being planned.

And after several decades of his advocating and his criticizing of such a transport system; America is actually reeling under a huge tremendous pressure where there is no robust public transport system. People drive almost everybody drives their own car; carpooling is being advocated more and more robust public systems are being advocated, which at that time nobody had thought as they were not even enough of cars; at that time

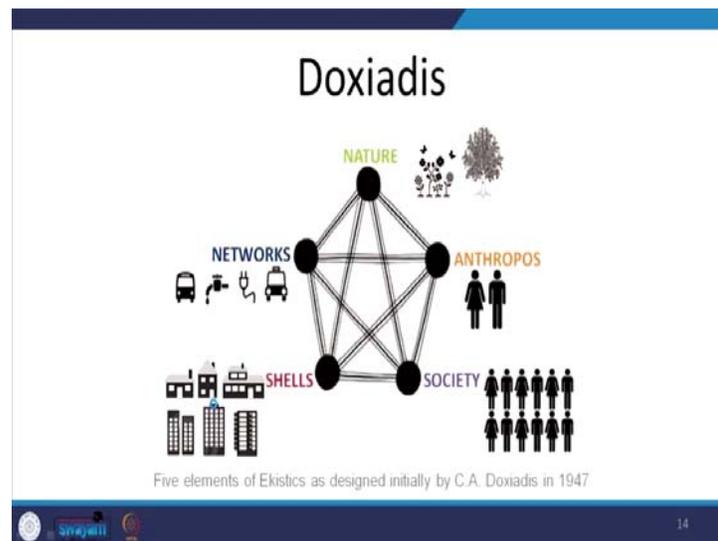
such a visionary was criticizing the use of such a mono technique. So, he wrote elaborately on technology and its use towards human life; mankind at large.

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Another visionary was ~~C~~Constantinos Doxiadis; Doxiadis was a landscape architect.

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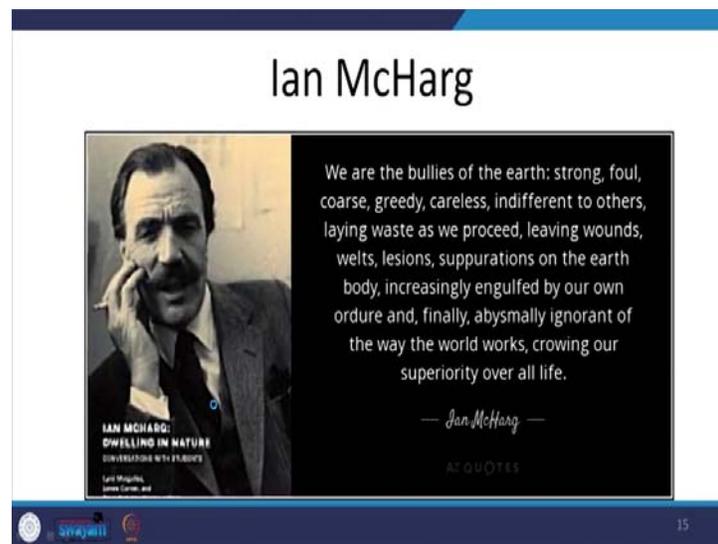
And he was an ecologist and he promoted, he advocated the idea of ecological cities where he advocated that society, the infrastructure system, the networks, the built environment, the buildings all be connected together with nature and people be an integral part of it. We cannot plan our cities with just infrastructure and buildings and not

include the people, society and nature into it. He advocated the idea of ecological cities which is an established idea in today's times.

Now, all these different visions; the ideas which we are ~~which we are~~ listening to today which I am discussing today seem to be pretty established in today's times. Because we are being faced with such severe crisis environmental problems, social problems, economic problems that all these ideas are fairly established and we understand the need for it. We have to think of the times in which these ideas were being advocated, those were the times when the population was probably one fourth of what it is now.

The pressure on resources, on environment was also not as much. The pollution though had begun had started being evident, but yet the quality of life from environmental point of view was not so degraded yet these visionaries were thinking of these ideas. And today all these visions and thinking's have led to an understanding of sustainable development of sustainability as an established idea, as an established philosophy.

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Another visionary is Ian McHarg; he was very critical of the way human beings are developing; the way we are growing. He called mankind human beings as a disease on earth, he said we totally insult the natural systems; environment, we are the bullies of earth.

He would make very strong speeches in public and where he would always criticize the way we are developing, the way we are growing human being as a race. He called human beings as the bullies of the earth very strong, foul, coarse, greedy, careless, indifferent to others laying waste as we proceeded leaving wounds, welts, lesions, suppurations on the earth's body. His discussions, his discourses motivated people to look at what is being done and also charted a course, where the other side of the thinking started developing and gathering momentum.

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## Victor Olgay



*Victor Olgay (1910-1970) was associate professor in the School of Architecture and Urban Planning at Princeton University. He was a leading researcher on the relationship between architecture, climate, and energy.*



Images Source: [press.princeton.edu](http://press.princeton.edu)

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Next visionary is Victor Olgay; he was an architect and he was an associate professor at the School of Architecture and Urban Planning at Princeton University. He was a leading researcher on the relationship between architecture, climate and energy. He advocated that all architecture at any scale starting from small buildings to large cities we designed and developed in direct relationship with the climate; climate of the place to which it is responding.

He wrote several books on establishing this relationship between architecture, climate and energy. He developed the design principles of how architecture should be shaped, he started discussing about the passive designing an architect passive designing in architecture for the first time and his writings he was an avid writer and his writings, his books are used as textbooks in almost all the architecture schools across the world. He is

a celebrated researcher; he researched in establishing the relationship between architecture and climate.

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Otto Koenigsberger is another one of the same league; Victor Olgay and he is almost a contemporary. Some of the great books which we read which were written by Otto Koenigsberger are being followed as textbooks in all architecture schools; the one we have on tropical climate; Architecture in Tropical Climate was also written by Koenigsberger and Olgay together.

They talked about how buildings should be designed for different climates; almost across the world and gave out handy tools to design these buildings. They advocated passive designing as the first measure towards designing climate responsive buildings which consume less energy. It was around the time when opaque all oil crisis had already taken place at a prop almost a decade prior to that and buildings had already started to consume great amounts of energy.

So, their vision at that time was much ahead of their time where they advocated for buildings to be passively designed; in order to consume lesser amounts of energy and be more comfortable in turn.

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## Jane Jacobs



People make cities, and it is to them, not buildings, that we must fit our plans." JANE JACOBS

Jane Jacobs holds up petitions in documentary evidence at one of many meetings to save the West Village from the motor vehicle. Photo by Wikimedia Commons.

Jacobs' ideas are a forerunner of today's Smart Growth, in which cities are concentrated at the core, automobile use is reduced, and nature, outside the confines of the city, has a chance to flourish.

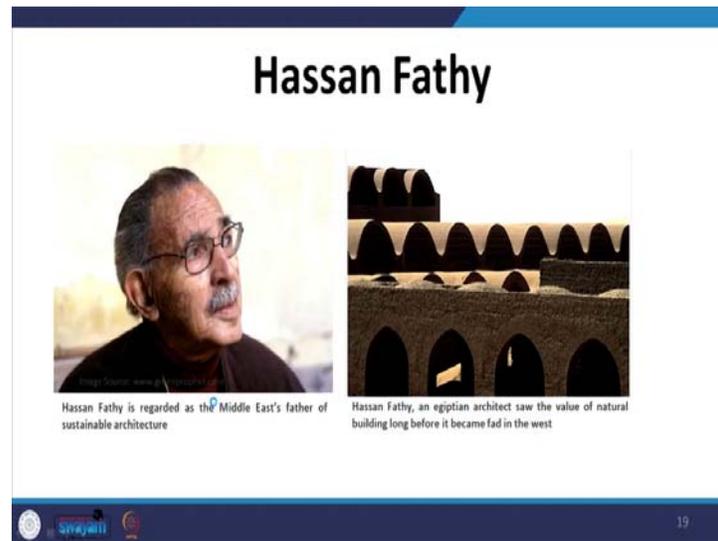
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Another visionary is Jane Jacobs; she was no qualified architect or planner; she was actually an ~~activist~~, activist; she was a journalist. And for the first time when she started the movement, the revolution against the opposition; it was actually to protect her village which was being taken up for the development of a city and a highway was supposed to pass through that.

She along with her fellow residents started protesting against the developmental project, development project which was eventually stalled and she from then on became a leading activist; who was looking at how American cities were growing, were being planned developed. She was the one who criticized the leading planner urban planner of New York city and she criticized the policies, the designs which were being undertaken by him.

Her writings which were gathered, which were a reflection of the experience that she gained over years of understanding the city's growth; the way cities were growing and she termed them as totally people unfriendly cities where people do not feel comfortable. So, the cities were just growing to support economic growth, but not the growth of societies of communities.

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The last visionary that we are discussing today is Hassan Fathy; Hassan Fathy is also known as Middle East's father of sustainable architecture. He was a qualified architect who promoted, advocated the use of natural building; natural building materials, traditional systems of designing buildings where passive design was the first step towards designing comfortable buildings and also advocated the Utopian architecture.

He was the architect who was commissioned by the Prince of Egypt in those times to design for his own house. And he convinced the prince to construct his house which was even actually a palace using the natural materials which were locally available; abundantly available, using the same passive design strategies which would be used for any other common man's residence and incorporating the same passive design features and making it look as if of the common masses.

He went on to develop some of the most prestigious projects in Egypt largely in that part of the world where he designed for cities, he designed for an entire settlement, he designed for the markets. All bearing the same identity as that of the place using the same locally available materials which were abundant and engaging the same passive design techniques. That is why he is very rightly called the Middle East's father of sustainable architecture and the kind of architecture that he created was totally rooted to the context; yet absolutely contextual, even for today's times.

His architecture paved way and coined; helped people ~~coined~~ the term sustainable architecture which is what we understand as on date. With this, we would conclude the last lecture of week 1. In this week 1, we have understood how sustainability and sustainable development gradually developed as an idea, as a philosophy. What were the historical events which led to the growth of this concept, who were the visionaries and what were their contributions which led to our understanding of sustainability and sustainable development as we understand it ~~today~~today? What are our needs and how can we move ahead; if we have to move ahead sustainably.

In the coming week, we would talk about the impacts of development which is not sustainable on the natural environment and what is the need for sustainable architecture. Why at all are we focusing on sustainable architecture; we would see that in week 2. Thank you for watching this lecture; see you again in the next lecture.

Thank you.