

Popadiuk I.Yu. Regulation of Surface Runoff using the Multi-chamber Storm Water Storage Tanks

Various designs of modern multi-chamber storm water storage tanks used in the international practice for regulating surface runoff from urban areas are considered. The advantage of multi-chamber tanks over single-chamber tanks is shown. A comparative analysis of reservoirs on different types is fulfilled. Some design features are described. Operating principles of storm water tanks that are commonly used in drainage networks around the world are analysed.

Keywords: multi-chamber storm water storage tank, regulation of surface runoff.

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THE MAIN THESIS OF THE NATURE-CONSERVATION IDEOLOGY

We considered the nature-oriented ideology not in the traditional context like the nature conservation but from the perspective of including into this category all the opinions, and all factors which have to not only to preserve existing nature but what is more important to help its renewal where it is possible in a native or artificial way. Of course, it's a very huge perspective but if all have the common understanding in the global scale and delete the confrontation thread, on our opinion it doesn't look like a utopia. The global human being needed to know the nature laws for the further and guaranteed existing with the environment. The main principles of the environment-oriented ideology must include the principles of the human being education too. Only the complex and holistic approach provides the real success in this situation.

Keywords: ideology, principles of education, principles of nature-oriented ideology, environment, globalization.

The idea of the further sustainable development of the planetary human society has been arisen due to the threat of the global ecological crises, which made people to worry just at the end of the second millennium. It was the idea of a strong relationship between co-evolution and biosphere, coexistence of natural environment in accordance with its law [1]. This knowledge is called logos and should be brought to each individual not only to elite.

The issue of the day is the Nature and its species preservation including Homo sapiens. We are allowed to make up a decision no longer then in 30 to 40 years, as N.N. Moissejev noticed. A strategy has to be developed during this time and the human population of the globe has to be prepared for the new stage of its development [1]. The atomic bomb appearance and a real planetary threat of a nuclear disaster made to life a perception about the humans and nature relations [2, p. 421]. If people are capable to grow up a new and better generation, we have got enough time.

The global challenging problem of humankind is, therefore, defined as well as the idea of solving it. But it is a long way of making an ideology out of the idea, as it should be brought to the wide sections of the population and to every personality. There is a need to substitute one value system by another through helping people to see and understand what they did not see. It not just a new morality needed but a new education as the only way to get keys to the Nature and the human interrelation [1, p. 66]. Problems of the ecological education are on the top of our issue. A certain level of education is required for the Nature protection.

Vernadsky V.I. at the beginning of the 20th century, noted that the humankind was turning into the main geologic force, governing the development of the Earth. It is known that humans actively explore about 55 % of the dry land, 12 % of the river runoff and about a half of the annual increment of the forest. Over 4 thousand cubic kilometers of the soil and subsoil are subjected to disturbance during construction and mining activities as well as during moldboard plowing. About 100 billion tons of ores, fuel and building materials are annually extracted from the Earth. The atmosphere receives $142,8 \cdot 10^{15}$ kilojoules of heat annually as 1 billion tons of incomplete burning. During the last 100 years it was consumed about 240 billion tons of oxygen and 360 billion tons of carbon dioxide joined the atmosphere [4]. Nowadays the discharge of carbon dioxide reached up to 20 million tons which is 3, 6 tons per capita [1]. It is becoming hard to make precise calculation and to predict these figures. It remains to regret for energy waste. In comparison with 1900, the global military expenditure increased in more than 40 times and in 1983 it reached 800 billion dollars per year. An astronomic sum of 6,000 billion dollars which had been spent by the world for armament showed how people use resources in vain [5].

The mad armament, started by the superpowers, leads to the economical ruin [6]. War is a real headache of human civilization along the entire period of its development, using gigantic natural resources and working force. Albert Schweitzer [6] noticed that wars are capable to work both for the progress and against it. Let's have a look at historical events.

A new Near East stage with a predominant culture was possible after the Assyrian victory over Babylon. The victory of Alexander the Great over Persians spread the Greek culture to all conquered countries from the Nile to India. But the were cases where high culture was changed into a low one, like ruling by Arab's inventors over conquered territories one such as Persia, Small Asia, Palestine, North Africa and Spain and displacement of the Greek and the Roman cultures.

Because of the wars, many towns and villages were destroyed, people were exterminated and many blooming regions were turned into a desert. Due to the testimony of numerous as historians and travelers "a virtual paradise" which was the valley between the Tigris and Euphrates, Palestine and other regions were turned into a handmade desert [7, p. 397]. The first and second world wars multiplied the evil, as two groups of countries fought against each other.

Let's take off pink glasses to see things as they are. The man happened to become a superhuman being what means the ability to rule and command the Nature through the achievements and knowledge. Before the human being could only use a physical force to stretch the bow and send the arrow to its target. Becoming a superhuman being means using certain chemical mixtures to release energy for killing a great number of people and harming the Earth. Also a tremendous force as a result of released atomic fissure can be properly studied and used [6].

Knowledge and skills, without their proper evaluation and understanding, led the humans to the borderline beyond which is the end of civilization. Having become a superman, a man being obtained a superman power, but a spiritual inferiority is becoming fatal. The lack both mind and the high spirit is a back side of a superman.

This tremendous force should be used only for kind and clever actions not for the murder and extermination of those who are different.

The threat of the global nuclear pollution of the environment and the mass destruction weapons have become a frightful reality. A man with his power is becoming miserable, what was hard to admit [6]. Some people realized the threat of the nuclear pollution only after the Chernobyl disaster, and paid no attention to A. Schweiser's warning. His thoughts were expressed about 50 years ago and they are still actual. Our task is to teach the youth [8].

The progress and the real development of the human society took place in the peaceful period of our history. The wars led to devastation and destruction. The peacemakers of the early days did not do any business with the common people but with their rulers or kings. Now leaders are elected and are responsible for nations.

Our only way of peacemaking is through the Intelligence. Its power should not be underestimated, as the Intelligence creates the humanity which in its term gives out a progress. If we are intelligent, we are true to ourselves and are capable to create. If not we make all kinds of mistakes. The power of the Intelligence became evident during 17th and 18th centuries, as led the European people out of medieval darkness, put the end to superstition and witch tortures, terrible brutality and foolishness.

It is able to create something new instead of old and is an eternal amusement for those who follow it. All material and spiritual property we have got through the Intelligence. A mistake done by K. Marx, made an influence on Lenin's bolshevism studding. There was a priority of political power in the development of society [9, p. 291]. Since then, theory of super profit and its distribution always led to conflicts. Not ethical differences but the will of getting the wealth and power made people forget about common sense. The Intelligence is waited for a miracle as it was in the Middle Ages, when people were led out of the darkness [6, p. 44].

The Intelligence did not die. It has hidden itself for a while. It does not depend on scientific cognition. It comes out from the inner world of each person. We should appreciate the life. We should help each person to find out his or her inner world; thoughts, feelings, be faithful to all beautiful sides of the inner world [6]. The peace depends on consciousness of nations and on inside out of an each person. It pertains to our time even more than it used to pertain to the former days. Such understanding demanded a considerable historical time for its complete assimilation. Because of passions and the lack of the felling of responsibility people are still away from the real mind. If people's good nature becomes essential for each nation, it will be the way of a peace achievement.

Today the monopolism of a human being is endless, due to the living matter development law, it leads to an ecological crises (which was demonstrated by Voltaire for the first time on a model level). That is why the ecological crises are unavoidable in the humankind history. Such planetary crises affect the entire biosphere not only the living matter. It becomes the epochal event in the Earth history. We are capable to create a new ecological niche, changing our life way, needs and wants, as well as the entire character of activity [1]. The primary task for any stage is to determine the tolerate consumption rates on the formulated principle basis and to use it in

the development strategy of a state [9, p. 63]. Such a principle of sustainable development had been declared on the Environment and sustainable development UN Conference in Rio-de-Janeiro in 1992.

Of course I am not going to develop such strategy on a governmental level, as it means to use considerable intellectual forces. But I hope to observe my proposals. Any skills as the knowledge can't be bought. Only through the incessant self cognition and self-development it could be achieved. The self-improvement desire must be awakened in every personality and put to the proper development, as it's in the human's genome. This way is believed to be thorny, long and difficult. Only human being is able to analyze mistakes and repent. The power of an Intelligence is an eternal and grate, but every person is given such ability to understand the laws of Nature through knowledge and skills.

Every person should be brought up in a friendly atmosphere. But the teachers are believed to be wise and flexible enough to become leaders for their students. The studying should be built on feedback principle "do like I do, do better than I do". A person has to be taught self-cognition and self-training to get self-perfection as it is the way of truth searching.

The government should encourage each family to be strong as the well bread up person is the essential requirement for the strong country. I mean politeness and ability to say "I am sorry", treating each other with respect. It also will improve "fathers and sons" relationship. It is a great responsibility to teach or to rule before the society. We should choose such people by conscience. Conscience is not the word but the feeling. Before one starts to treat somebody else's conscience, he has to be at peace with its own. The education process should be based on spiritual rates, avoiding extreme. The atheism and thirst for profit are the main factors of all the troubles.

Any socio-economic system tries to accumulate skills, knowledge to survive in the turmoil of history. It must be flexible enough to new conditions which make possible the development of a planetary society. The will to life is a powerful force which can be realized only in love. Through new generations we hope that the acquired knowledge, peace and understanding will lead the humanity out of the environmental crisis to a new spiral of anthropogenesis.

Hatred gives a birth only to hatred, and has to perish as it is written in the Book of Books. Only love has a right to live. The humanity has not learned to live yet. Being able to use the mind they cannot understand each other (because of conscience and peace lack in a single human being). There are certain difficulties which have to be overcome in future. We still need some time for realizing that the good will and the possibility to communicate freely with each other is essential at first inside one country and later on among all countries.

By a new upbringing approach, we have to help each other, parents-their children, and a man to a man. One should understand if you got the life – live but without a bitterness of aimlessly lived years. There are words of the literary hero created by M. Ostrovsky, P. Korchagin: Life is one and it's a great gift, you should not feel sorry for the lived years because of bad actions and before the death you could say: "All life and all strength were given for the most beautiful thing in life, the struggle for the liberation of humankind". But it should be added here that the liberation of hu-

mankind from the fear for the future, for the threat of war and against the impoliteness and ingratitude before the Creator.

Our life is a gift which should be properly used. And a society fault is in misunderstanding taking out from communistic ideology. It is a pity that people do not see that surplus is as bad as shortage. Having forgotten that coming to the world as a baby and leaving it, we bring and take nothing. The spiritual link is only one thing to remain. If one does not obtain a real spiritual bliss in this life, he won't be able to feel the sacredness of it [6]. The optimum or the golden medium should be brought up in every person. The optimum can be reached through the common sense and spirituality, not out from rushing after money.

The education and development tasks for harmonic had been already settled. These tasks are still fresh in our memory, because of "The moral code of the Builder of Communism", which remained on the paper. But it is a pity that we do not take things out of it which are worth. Every human being has to reach its top in humanity, morality, conscience what is the base and requirement for the new development. According to V.I. Vernadsky it would be the development of a NOOSPHERE [10].

The living matter [10] is very diverse in its composition, varies in colors, unattainable but equally important for the development of Nature, which is admitted to be true by all the governors of the planetary society and designated by the term "biodiversity" the validity of which has been declared by the international agreements [11] A human being is unable to exist without the Nature as its product and an integral part of a biodiversity. We are shown not to be the kings or masters of Nature, but the opposite with our blood and flesh and brain, we are inside of it. Our only advantage as people is to understand laws and to use them correct [12, p. 154, in Russian]. Such statement is very deep and important. Unfortunately, people still did not cognize the laws of Nature and not taught to use them right. Having assimilated the experience of world history, K. Marx and F. Engels succeeded in formulating a teaching that the free development of every individual is a basis of free development of the entire society [9, 13].

It is a pride that Ukrainians are close to the idea of social justice and humanism, which "has an extremely significance and demand a deep scientific understanding. We are not allowed to be reticent, but get a clear view of it and use it properly in the development of Ukraine upraise strategy [9, p. 308]

Ukraine has to take in account the global tendencies in the socio-economic processes in life which are still in progress. A new system of knowledge, formed at definite stage can be observed as scientific only when good and positive things in former epochs are included. Such is the dialectics of social progress (the mutual penetration and enrichment of ideas and the synthesis of new ones) which takes in account the social thoughts for past years. Old knowledge must be assimilated with a new one. That is why the utopian ideas from our past are more and more distinct. We feel the need to pay attention to the humanism principle, to social justice and free self expression as the result of the human nature economical concepts and epochs are to change, but the aim of economic activity which is to serve people and ensure their welfare [14, p. 30]. It is possible to achieve this only by living in harmony with the laws of the Nature, which favor the mankind. Unfortunately, even to nowadays, the

human society acts against the basic laws of the Nature. The development is not the struggle but the transition of the social development and the natural environment.

Through common and well organized actions the Intelligence can make great things as achievement in scientific-technical field (it is a pity that in some cases the revolution gets out of control) [8]. But the human abilities are not limited, as have been proved more than once. The bad thing is the lack of spiritual side. And it may affect the mutual understanding. The spiritual harmony should be ahead instead of been behind of the scientific and technological progress and to rule it in a peaceful way.

The global world consists of single parts, the society consists of persons. Every single person has an important role in saving the biodiversity through cognizing itself. Our destiny depends on our choice between good and evil. So start with yourself. What to choose? Cognize yourself. Give the preference to kindness. There are the Laws in the Book of Books that should be followed through the awoken love but not for evilness.

The process of bringing up is complex and should be based on support, help, mutual understanding (one must teach himself and the others through self-cognition, self-training and in desire to find out the truth) as it is necessary to prevent suspicion, fear as they are against good. Love is the only way to the fruitfully creative planetary society. Of course life is not the simple thing especially for entire planet, but it worth to make an effort. People still have the right to choose and there was and there is the light at the end of a tunnel. But for us enough to have the sunlight and we should use it in a good way.

The future of a globalization (the main stand point is to avoid the wars) lies in the most complete understanding and analysis and in case of any problems appear the quick solution. It takes time in strategy development [1] and in helping people be ready to accept it independently, simultaneously, gradually. Only common sense, mutual understanding and the Intelligence are capable to lead the humanity out of an impasse of a global crisis. "Any economic policy which pretends to be successful starts from being truthful or people as only a human being with its psychology, hopes, plans and finally mistakes is the center of economical life. Economics is realized by people [14, p. 59].

Qualitative changes of a planetary society will be possible in case of taking them to peoples' hearts, through the Intelligence. Only true knowledge should be used in education of new generation and the result is longevity and adoration of life. The nature protective forestry strategy is the main to support the national environmental network, was declared [15] but needs more content. The law "The land reclamation" was adopted on 14 January, 2000 № 1389–XIV "The State formation program of National Ecological Network for 2000–2015" was adopted on 21 of September № 1989–III [16, 17]. But nothing was noticed about "protective afforestation".

Ukraine with its scientific potential has its role for world arena. The wind and water erosion control experience, where a great role is given for afforestation was estimated. The afforestation fights against desertification. It is true for southern countries where the forests were slashed out and soil erosion reigns supreme. The Ukrainian positive experience in this field was appreciated [18].

We hope that the forest law will be added, as it is impossible to overestimate the role of nature forest and protective tree planting in solving the environmental problems [19]. The protective afforestation, as an important strategy in the national ecological network formation is a safe, reliable and is a long-term mean of protection not only for farmland areas but for the entire environmental a result of a pertinent influence [20, 21]. The soviet pedagogy upbringing principles determine the main direction of upbringing: content, methodology, organization and even the relationships among members of the upbringing process. It is necessary to take into consideration the pre-school stage starting with the family.

The principles and basic requirements to the process of upbringing in school [22-24]:

1. The ideology of nature protection and the purposefulness in this respect.
2. The link between the real life and upbringing process, which also means the environment reproduction.
3. To work in collaboration and to be reliable.
4. Focus on respect and the reasonable demand.
5. Positive point of view.
6. The link between the education and the age of a child.
7. The individual approach to upbringing and education.
8. The united demand as in families as in school.
9. The systematical and non-stopping process of upbringing.
10. The desire for self-perfection, self-training in a harmony development.

The next stage of upbringing is a proper professional training with a certain level of professional qualification obtained. There is the problem of educated experts in the field of forestry. The specialists in forestry cannot be replaced by other without harm to the forest [25]. Training the professional elite for Ukraine is very important and responsible task for today. But also specialists in agroafforestation (agroforestry) are needed to make stability of farmland fields to support crop-production systems in the state.

To get specialists more educated we should elevate the demands for the teaching and solve some specific questions in taxonomy, tree crops and reclamation fields. The fundamental priorities which we continue to develop must be based on following terms: to know, to understand, to care, to have desire to get some knowledge, to be skilled, to foresee the possible consequences, so as not to cause additional damage to the environment by one's inept economic activity, etc.

The basic principles of nature protective ideology should organically combine the principles of upbringing and education. They are:

1. The knowledge and understanding the laws of nature (do not harm, do not work against, cooperate, get help, obtain a proper result) to create a blooming garden on the Earth.
2. The ecological view in upbringing and education.

To come back to morality, honor, conscience, love.

Only a complex, integrate approach can lead to the result in upbringing and education field. Let the Nature protective ideology be the main factor as its principles in the upbringing process. People as the God's children should be worthy to live on the Earth.

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Малюга В.М. Основні положення природоохоронної ідеології

Природоохоронну ідеологію розглянуто не в традиційному плані, як, наприклад, охорону природи, а з позиції включення в цю категорію цілісної системи поглядів, всіх чинників, які мають не лише забезпечити захист наявного природного середовища, але, що головне, сприяти його відродженню там, де це ще можливо, природним або штучним шляхом. Це, звичайно, грандіозна перспектива, проте за умов спільного порозуміння у планетарному масштабі, ліквідувавши загрозу протистояння, на наш погляд, це не видається утопією. Планетарне суспільство потребує знань законів природи для подальшого гарантованого співіснування з навколишнім середовищем. Основні принципи природоохоронної ідеології мають органічно враховувати принципи виховання самої людини. Лише комплексний, цілісний підхід у цих питаннях може забезпечити реальний успіх.

Ключові слова: ідеологія, принципи виховання, принципи природоохоронної ідеології, природне середовище, глобалізація.

Малюга В.Н. Основные положения природоохранной идеологии

Природоохранная идеология рассмотрена не в традиционном плане, как, например, охрана природы, а с позиции включения в эту категорию целостной системы взглядов, всех факторов, которые должны не только обеспечивать защиту существующей природной среды, но, что главное, содействовать её возрождению там, где это ещё возможно, природным или искусственным путём. Это, конечно, грандиозная перспектива, всё же, при условии достижения взаимопонимания в планетарном масштабе, ликвидируя угрозу противостояния, на наш взгляд, это не является утопией. Планетарное общество нуждается в знаниях законов природы для дальнейшего гарантированного сосуществования с окружающей средой. Основные принципы природоохранной идеологии должны органично включать принципы воспитания самого человека. Только комплексный, целостный подход в этих вопросах может обеспечить реальный успех.

Ключевые слова: идеология, принципы воспитания, принципы природоохранной идеологии, природная среда, глобализация.

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ЭФЕКТИВНІСТЬ ЗАХИСТУ ПОСІВІВ СОЇ ВІД БАГАТОРІЧНИХ ВИДІВ БУР'ЯНІВ У СИСТЕМІ ОСНОВНОГО ОБРОБІТКУ ҐРУНТУ

Досліджено ефективність захисту посівів сої від багаторічних бур'янів за використання Раундапу і Лонтрелу в системі основного обробітку ґрунту. Використання гербіцидів у системі основного обробітку ґрунту зменшує забур'янення багаторічними видами, але не знищує малорічних бур'янів, які проростають навесні і вегетують одночасно з культурою. Виявлено, що Раундап, 36 % в.р. з нормою витрати 4 л/га восени знищував їх на 75-87 %, а навесні, до проведення передпосівної культивуації, кількість багаторічних була меншою на 77-91 % порівняно з контрольним варіантом. Лонтрел, 30 % в.р., за норми 0,5 л на 1 га, забезпечував загибель 84 % багаторічних дводольних бур'янів восени і на 80 % – під час обліків навесні.

Ключові слова: соя, гербіциди, Лонтрел, Раундап, багаторічні види бур'янів, основний обробіток ґрунту.

Вступ. Захистити посіви сої від малорічних бур'янів можна агротехнічними заходами та використавши ґрунтові чи післясходові гербіциди зі широким спектром дії. Значно важче вирішити цю проблему, якщо вона пов'язана зі захистом від багаторічних бур'янів, зокрема, від кореневищних і коренепаросткових видів. Тому проблема захисту посівів сої від багаторічних бур'янів є актуальною і потребує поглибленого вивчення. Адже втрати урожаю сої від бур'янів становлять 15-40 % [1], інколи вони сягають 89 % [2] або й зовсім гинуть. Тому

вибраний напрямок досліджень, що передбачає поєднання використання гербіцидів суцільної дії або спеціальних препаратів з вузькою вибірковістю у системі основного обробітку ґрунту та застосування ефективних ґрунтових і післясходових препаратів під час догляду за посівами є актуальними для Лісостепової зони України, здатними забезпечити належні умови росту і розвитку культури та формування її високої продуктивності.

Сучасні технології вирощування сої передбачають комплекс організаційних, агротехнічних заходів і хімічних засобів захисту, які забезпечують обмеження шкодочинності від малорічних видів бур'янів.

У багатьох господарствах через нестачу технічних потужностей і відсутність коштів на енергоносії часто не проводять післязбирального лушення стерні зернових колосових культур, що сприяє швидкому післязбиральному відростанню бур'янів і дозріванню їх насіння. Поряд із значним зростанням потенціальної засміченості орного шару насінням малорічних видів бур'янів, значного поширення набули багаторічні види, зокрема кореневищні (пирій повзучий, хвощ польовий) й коренепаросткові (березка польова, осоти рожевий та жовтий польовий, молокан) тощо.

Вважають, що проведення дискового лушення стерні сприяє зменшенню забур'яненості багаторічними видами в 2,7 раза порівняно з ділянками, на яких лушення не виконували [3]. Тобто виконання такого агротехнічного заходу сприяє значним витратам запасних речовин кореневищами багаторічних видів бур'янів на відростання нових пагонів і розеток, після чого багато з них не витримують наступної оранки й гинуть. Крім цього, лушенням знищуються малорічні бур'яни, які знаходились під покривом культури і чекали відповідних умов для інтенсивного росту та утворення значної кількості насіння. Тому наукові установи рекомендують здійснювати лушення стерні зернових колосових культур на 1-й або 2-й день після їх збирання, коли ґрунт, навіть за високих температур, ще зберігає достатньо вологи для його якісного оброблення і тоді не потрібен повторний прохід агрегата. Виходячи з цього, необхідно раціонально використати "тіньову" стиглість ґрунту, яка сприяє досягненню мети з меншими витратами часу, енергії, трудових ресурсів.

У полях, засмічених багаторічними видами після дискового лушення стерні та подрібнення підземних стебел і кореневищ, спостерігається інтенсивне відростання розеток і пагонів бур'янів. Тому загальна кількість рослин зростає в кілька разів. Донедавна дискове лушення вважали заходом, який сприяє збільшенню чисельності коренепаросткових видів. Проте дослідженнями професора В.М. Жеребка [4] встановлено, що цей висновок правдивий в тому разі, коли не застосовують гербіциди та допускають тривалий розрив між відростанням нових рослин і проведенням зявлової оранки або повторного дискового чи лемішого лушення.

Виходячи зі зазначеного вище, у 1998-2010 рр. проведено дослідження з вивчення ефективності застосування в системі основного обробітку ґрунту гербіцидів Раундап, 36 % в. р. (4 л/га) та Лонтрелу, 30 % в.р. (0,5 л/га), а в післясходовий період – Півоту, 10 % в.р.к. (0,75 л/га) або бакової суміші Галаксі топу, 47,1 % в.р.к. (2 л/га) з Поастом, 20 % к.е. (2 л/га).