

Theoretic Ponder about Soil and Water Conservation and Continued Development of Erosive Hilly Region

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Abstract:On the basis of making a thorough investigate and study about the concrete conditions on east erosive hilly region in HeiLongJiang province,advance an conclusion of universal significance after a thorough thinking and analysing,meat that we must follow the basic theory about ecology and their environment construct of erosive hilly region and study of continued development.The main content include: the whole theory about landforms setup,the excellent structure theory about continued development,the theory about mediate self limit of ecology system and the paid use of regenerated resources adjust and control by man,the relationship theory about soil and water conservation and continued development,the theory about the three big benefits unify of ecology,economy and society of ecology and their environment construct of soil and water conservation and synchronization development.

Corrode water and soil conservation of mountain area ecological environmental construction study field more discipline that involve with sustainable development, Need to develop multi-disciplinary research. This research is directed against the particularity of the big system of mountain area, according to the ecological basic principle, Have explained from five respects that corrodes the basic theory which should be followed in water and soil conservation ecological environmental construction and sustainable development research of mountain area:

1 Globality theory of the pattern of ground form

Distributed very widely in the mountain area of our country, the topographical ground form is changed complicatedly, the situation is various, The regional natural resources(land resource, living resources, water resource, weather resource) and ecological condition, Not only demonstrate the obvious region difference, but also the influence because of the local conditions of mountain area, Behave too differently in the same area is highly different and above sea level. So the natural resources in the mountain region is inlaid a comprehensive organic structure system made up but become by different ecological nature component parts , It is a big system formed of various kinds of factors. It is the topographical ground form to divide key elements of different component part of resource Bian Jies in this structure system. Form topographical ground form control and down, through long history bioclimate function and play the role of and take the place of of terms of times in geological period, Form varied area quality and area quality, regionality and step regional resource of mountain region synthesis, Unify after realizing living beings and height of the environment. So, or not the ecological view of the area quality regardless of the ecological view of the area quality, Have a relative stability on relative rationality and system on structure (namely the ecological balance). This kind of plane of mountain area and three-dimensional structure pattern formed under function of natural force, Become the objective regulation nature that must be abode by while the mankind develops and utilizes .

The so-called objective regulation nature, the ecology nature which can't be deviated from in the course of utilizing in human development that mean , Change or confirm the direction utilized in a certain development of resources wilfully. And Bian Jie of different natural resourceses form the outline of ground form in this kind of resource key element, So long as is not constructing it by canning change under the measure situation of ecological attribute naturally completely , Can't surmount and draw a circle

to approve ground form border come and change and utilize direction at will. Such as break through ground form pattern district develop and utilize, not merely difficult to get high and steady productivity, Will also suffer the serious bad consequence of ecological quality , will receive the punishment of the nature, There are the experience and lessons in this respect much.

Second, the natural resources synthesis, have inherent quantity than regulation nature in its different ecological attribute, different ecological of group of function, Every kinds of resource amount among them is the weight of group of a certain natural resources in the specific natural resources synthesis, Every kind of group weight and proportion of this synthesis, the ratio of calledding amount. This kind of quantity be unable to change easily either while the mankind develops the natural resources utilizing the mountain region than the relation, Otherwise must invest the measure that can change this kind of resource ecological attribute , Even so, can only be the some and a small amount of change, as to ing wholly, Must also develops and utilizes synthetically according to this bottom of ecological attribute of the natural resources .

2 Structure optimization theory of sustainable development

Systematic theory think all system must have structure, certain ecological economic structure indicate ecology economic in a certain state system usually, The structure has decisive function to the state of the system. The structure is a foundation of the function, the function is the behavior of the structure. Want to improve the ecosystem function in the mountain region and controls soil erosion , realize sustainable development, The most basic measure lies in optimizing their systematic structure, this has already been developed practice of building by the mountain area to verify . Support this kind foundation of theory that mountain region natural resources have person who should utilize have many and changeability of ecosystem. This is to lose in the mountain region to degradate in ecosystems the basic principle resumed and rebuilding . To the natural resources of mountain region of every kind, there can be varied use . So structure optimize it is people that know one relative concept that have , follow systematically structure optimize improvement of competence, The systematic function will be increased too. If the east peaceful ditch village of Ning County of the eastern part mountain area of Heilongjiang Province regards “farming,forestry,animal husbandry,sideline production and fishery ore” as agent structures and synthesizes renovating, management mode, Half Yilan second growth of county transformation taking “fruit medicine of woods” as agent structure synthesis of mountain area renovate, management mode, Having controlled soil erosion effectively, improve the ecological environment in the mountain region , the purpose to realize sustainable development, It is water and soil conservation ecological environmental construction and model of sustainable development of mountain region inside the province.

Systematic structure optimize it is people that utilize structure optimize theory coordinate living beings and environment, ecology and economic synchronism development. At the time of using this theory, should debate on the foundation known and diagnosing systematically in the environment according to different ecological type districts , According to the level quality of the ecosystem structure of mountain region, imitate the natural ecosystem at first(or the biological characteristic of imitating the top community), Carry on the optimum design of the ensemble architecture systematically to the production distribution taking farming,forestry,animal husbandry, sideline production and fishery as content in the mountain area; Secondly, also want it according to the relation of the biological intergrowth, to producing optimum design primarily according to the theory of the ecological location , And then to producing optimum design secondarily according to the principle of food chain; Besides, it should be in order to guarantee with the technical design of practical optimization that to every level, The recycling rates of the conversion ratio for canning raise the system regular rate, biology to the solar energy and of fal. This kind of optimization structure can make biological populations produce and utilize function each other , Change environment competence of controlling , reach and last most heavy ecological benefits and environment clean and pollution-free, And the continuous utilization of resource, the low purpose to invest high benefit that realize.

3 Limited quality that ecosystem transfer by oneself with artificial to adjust and control regenerated resources can utilize the theory with compensation

It is the a bit righterrest that the living beings have one to cooperate with environment, when it is a bit righterrest to be on the occasion of, Produce the peak value of the ecological economic benefits. But the environment is the place in relatively stable dynamic course is normal cases in fact, Clicks and swings around the best state, biological individual and population are with its peculiar --Resist and come and adjust their life state against quality, ecosystem come and coordinate, lower the strength interfered through their negative feedback mechanism, Make and interfere unlikely to destroy systematic stability is in order to realize living beings give birth to the course normally, This normal life range or block , is the threshold value talked about. Because ecosystems all have a function of negative feedback, all adjust ability by oneself, But different ecosystem transfer ability differ greatly, then every threshold value of ecosystem or threshold limit value it has to be very heavy difference by oneself. As regards mountain area, it is a big system formed of various kinds of factors, is usually by forest ecosystem, the meadow ecosystem, farmland ecosystem.... Wait for subsystem form, transfer most better ability by oneself with forest ecosystem among them, It influence by the weather is changed with the soil, kind with compete and attack of plant diseases and insect pests of kind, Demonstrate very strong adaptation mechanism, especially there is very strong resisting going against nature to soil erosion, Can perform by ability that transfer by oneself for top community, form one strong and steady ecosystem. The forest ecosystem is the important part in the whole ecosystem of mountain region , The important pivots of the nature and material and energy , the ecologicals environment to ground, underground and space are all Taxi influence and complicated and various function in many ways, Among the course of the material and energy exchange, and occupy the particularity status while protecting the dynamic equilibrium of mountain region in the biosphere of mountain region . If the earth core of ecological balance marine ecological environment, then core of ecological balance of mountain region and ecological environment most heavy person who is regulate forest. So foster and cover degree very heavy water and soil conservation woods system, should water and soil conservation of mountain area ecological environmental construction and primary task of sustainable development in mountain region. Secondly, it is the meadow ecosystem that has relatively strong adjusting ability by oneself , it is through assembling theatrical companies or actors and actresses to give performances in order to become the high quality meadow by oneself, Play a assisting and supplement role in safeguarding balance of the ecosystem of mountain region and biological variety . Under comparing with, farmland of mountain region ecosystem transfer relatively weak ability by oneself, material flow of it change most frequent with quantity that can flow, It is an extremely unstable system, the nutrient that the crop draws from the soil every year was difficult by adjusting compensating by oneself, In case of tilling land and does not raise the ground , land fertility will fall sharply, the output will drop by a large margin .

Ecosystem, though have to transfer ability by oneself different size, all ecosystem transfer ability limited by oneself, Can't break through before exerting new adjusting and control artificially , as soon as exceeded the threshold value (the block) or the threshold, Will present the phenomenon of ecological disturbance , the farther the ones that deviated from are, the more serious the ones that lacked proper care are, And even the vicious circle, system crash. But threshold value is variable, the key lies in being adjusted and control artificially , if adjust and control artificially aptly , Utilize and do in the proper way , adjusting ability by oneself of the ecosystem can be strengthened, even increase at double, On the contrary, adjust ability to drop by oneself, until losing totally. Artificial essence that adjust and control to want to regenerated resources can utilize with compensation, Called ecological compensation. Plant, animal, microorganism, land,etc. belong to but the regenerated resources, It one remarkable characteristic that utilize , while developping and utilize, but recycled increase essential input and manage in resource (thing throw, can throw), Make manpower and natural force, social productivity combine and get up with natural productivity, Promote ecological resource steady and lasting high yield is to satisfied with direction that mankind need develop. So, but regenerated resources utilizes the necessity of determining ecological compensation of the characteristic.

The so-called ecological compensation is to draw a part of fund to return the ecosystem from utilizing the economic benefits that resource get in the form of material, energy or information, In order to

maintain and promote dynamic equilibrium and trends development that the material, energy, information in the ecosystem were inputted and exported. There are these ways that the artificial supplementary energy of implementing ecological compensation invests mainly: First, living beings can input, if it mix and pay it afforest, crop rotation changing crops, grass field crop rotation, plant green manure of, there aren't organic wastes at poles straw ...,etc.; Second, energy of form of operation and administration put one's back into, if nurturing of forest upgrade, low price second growth transform, pursue water and soil conservation cultivation, builds the water and soil conservation project (from terraced fields , ground low banks, valley workshops, pool dam,etc.), it foster by improved variety and invested chemical fertilizer, agriculture chemical, irrigating, draining off water, industry form of energies ,etc. such as being mechanized of

In a word, it is varied to assist the way, form, kind that can be invested artificially, Can suit measures to local conditions , so long as input is proper , can reach the coordination of the economic system of the ecology, balanced goal increasing production, raising an increase of and promote sustainable development .

4 Water and soil conservation and theory of the sustainable development relation

Speaking from the theory, water and soil conservation to input artificial to be able to assisted , introduce the material, energy and information, Introduce negentropy (relying mainly on woods grass green plants) , make it by unordered to orderly, low preface to transform in order highly, Principle of ordering transformed to the benign cycle of the ecological balance from the vicious circle with out-of-balance ecology .

water and soil conservation sustainable development of< should include water and soil conservation and two parts of sustainable development , Water and soil conservation is means, foundation, sustainable development is a goal; Its range of application should be the soil erosion area, and the meaning with sustainable development of water and soil conservation. We summarize the sustainable development of water and soil conservation: In soil erosion and desert ization area, regard water and soil conservation as the means, through developing the prevention and administration of soil erosion and desert ization correctly, Make this regional water and soil resources can be utilized continuously, destroy, polluted or degraded, And then realize a kind of mode developed with the human society together naturally of ecology, economic, social sustainable development. On the space, it emphasizes certain regional range, namely in soil erosion and desert ization area; On time, it emphasizes the lasting use to the water and soil resources, namely not only meet the demands of contemporary people, Consider the demands for the water and soil resources of progeny people too.

Water and soil conservation is means to realize sustainable development, is an important infrastructure of sustainable development. Can make the ecosystem degradating resume or rebuilt through water and soil conservation, Can protect biological variety , make what sustainable development rely on regenerated resources can receive continuous utilization, The life of protecting the earth supports the system not to be destroyed . On the contrary, sustainable development can promote the water and soil conservation ecological environmental construction of mountain area getting enhancement constantly again. So, corroding the mountain area must do a good job of water and soil conservation at first, control soil erosion overallly effectively, Establishing the material base for sustainable development, in this way sustainable development can be realized, This is a prerequisite . Otherwise, although can obtain higher ecological benefits and very high economic benefits in a short time , But it is impossible to realize sustainable development.

Realizes that sustainable development is goals of corroding water and soil conservation ecological environmental construction of mountain area. The realization corroding this goal in the mountain area should take the road to ecological agriculture , Because in much goals of ecological agriculture, the most basic principle is to set up a fine production and ecological environment, Keeping the soil fertility of a high yield, resources must be utilized forever continuously, the ecology must circulate benignly, Production must leave in the roads of multi-form agriculture of high yield, producing steadily, low consumption , so ecological agriculture can be called lasting agriculture, Its cardinal principle and water and soil conservation and thought and goals of sustainable development are all unanimous. Consider that

corrodes the characteristic in the mountain area, set up ecological agriculture here, should stress the function of water and soil conservation , So, can be called “water and soil conservation type ecological agriculture”.

5 Water and soil conservation ecological ecology, economy, social three major benefit of environmental construction in unison with develop theory in step

The views of the ecological benefits, speaking from the essence, first, keep the ecological balance, Realize the view of ecological benign cycle, but can't think the ecological balance in absolute terms , Think the ecological balance all right, and ignore to the natural transformation, the transformation to the balance of ecological environment of poor benefit. Because the ecological balance formed while specific nature of nature, geography are dynamic, It is generally in harmony between the structure and function, it is a result that the living beings and geographical environment meet each other. This kind of ecological balance, it is not very tall that come to weigh in terms of economic benefits, By the look of systematic angle, it should be trends, this basic rule developed constantly not to accord with the balance either. Such as: The overmature forest, though the systematic structure is complicated, the relative living beings amount are big , But a large amount of energy is used for maintaining the need of its one's own life, and it is very small to only produce, Its ability to resist ones that interfere is very weak too at the same time, do not benefit to new higher balance attitude development ; And for example the secondary mixes in the wooden woods, although net productivity is not small, the economic worth of the products is low, One's own its is still on a relatively low-level balance level . To the low yield, low value, low area that accepts, though it is in state of “ecological balance”, But we should transform their into high yield, high value and high mixed forest, economic forest, pasture harvested,etc. , So accord with the ecological law as well as accord with the economic law. Second, there should be the views of globality and long-term quality . Because the machine with main ecosystem can not pursue the living beings to grow , but give play to the best function of the ecosystem, Regulate growing with the negative feedback, change a set of ecological office procedures, such as multiuse principle,etc. with the function, Achieve the purpose to give play to the systematic function of the whole ecological environment to the maximum extent. So consider ecological benefits own account only , and should proceed from whole, the overall situation and calculate the indirect ecological benefits account of the extending type too , Namely can't just think of and jeopardize the overall situation and long-term at present , lose the greater for less. This is a basic principles which must adhere to in water and soil conservation ecological environmental construction of mountain region .

Economic benefits and ecological benefits interdepend , restrict each other. Generally speaking, the ecological benefits are natural foundation and material and source of the economic benefits, It is a precondition of realizing the economic benefits; The ecological benefits are high under equal technical management and other social conditions , must cause the higher economic benefits , Working and consuming on an equal basis , the project with low constant ecological benefits gets the more products, Therefore has increased economic efficiency; If under the equal ecological benefits level, quality and other social conditions that the level of the economic benefits depends on the management of the society, engineering level, work .

We emphasize ecological benefits, economic benefits, purposes are all for obtaining the social benefit, Namely make the people's materials and need of spirit in all mountain areas get more satisfying, Life gets greater happiness. Particularly, make people have one graceful, comfortable, civilization, bright life, production, survive terms. In three benefits, the social benefit is the purpose , the ecological benefits are foundations, The economic benefits are means. Between three benefits is the dialectical unity, they are conditional, influence each other , During environmental protection, the directions of three benefits are unanimous. But three exist contradictory too sometimes , think such as scheme that have from the near future, There are good economic benefits and social benefit, but consider from a long-term, may pollute the environment , Damaging the balance of the ecosystem, this kind of scheme is generally unsuitable to be adopted. Otherwise must take strict remedy, make the near future interests and long-term interest, local interest and whole interests coordinate and get up, Must make three benefits given consideration to, make it become development and construction not destroyed.

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