

ievietošanas kompostēšanas kamerā. Vidējās izdalītās siltuma jaudas kompostu maisījumiem 3...12 dienu kompostēšanas periodiem uzrādītas tabulā.

Tabula

Vidējā izdalītā kompostēšanas siltuma jauda, W uz 1 kg sausnes

Laika periods, dienas	Ezeru niedres	Zāle	Komposts, nostrādāts 75% + niedres 25%	Niedres 80% + kūtsmēsli 20%
0 - 3	5,8	18,7	3,1	6,8
0 - 6	8,1	10,4	3	5,7
0 - 12	7,8	n	n	n
0 - 18	4,7	n	n	n

Secinājumi

1. Mehanizācijas līdzekļu modernizēšana un kompostēšanas operāciju vienkāršošana samazina tehnoloģiju energoietilpību par 21%.
2. Vidējo siltuma jaudu lielumi rāda, ka niedru kompostiem, salīdzinot ar zāļu kompostu, vidējā siltuma izdalīšanās intensitāte pirmo sešu kompostēšanas dienu periodā ir 3 reizes mazāka.
3. Zāļu komposta maksimālā izdalītā jauda 31 W tika novērota otrajā dienā, bet niedru kompostam 12 W tika novērota 5. dienā pēc kompostēšanas uzsākšanas.
4. Komposta maisījumu pārjaukšana un slāpekļa minerālmēsļu papildināšana palielina siltumu jaudu visiem novērotajiem kompostu paraugiem.

THE PROBLEMS ON ESTIMATION OF THE RATE OF SUSTAINABILITY

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Launching of the sustainable development means solving quantitative problems of controlling of the state of global circulations, functioning of climate machine etc. The main processes determining sustainability of the state of the natural environment are

- a) carbon cycle and the work of the climate machine which in fact are closely connected,
- b) water cycle, (over)use and pollution of global and regional water resources,
- c) also the change of the flow of organic substance and biogenic elements into one-way flow "land→town" instead of the natural circulation "soil→plant→animal (human)→soil".

To ensure the sustainable development human activities must not jeopardize the dynamic balance of the main substance cycles (especially carbon and water cycles) exceed the buffering capacity of natural systems. This presumes the quantitative assessments of the processes that influence the sustainability of the development and the

distribution of the buffering capacity between people (determination of the environmental space) which does not mean only the execution of the "division operation", but also the existence of the will of the people to commit themselves to worked-out division rules. The people's good will should be based on the understanding, on the integrated and systematized, presented in an understandable manner, information and the availability of it.

In Estonia the sustainable development is endangered mostly by the concentration of industrial production and, as a result of it, also the consumption of natural resources (especially water) and environment pollution in Northeast of Estonia, which represents about 7% of the geographical area of the country and where nearly one third of Estonian industry, primarily oil shale mining and processing, is concentrated. The environmental problems caused directly by oil shale industry, are covered 11% of the territory of the district, but the problems related with overconsumption and pollution of water and emission of CO₂ by oil shale burning overspread the borders of the district.

The aim of present study is to discuss main problems affecting the sustainability of the natural environmental systems in their entirety, considering both local (Ida-Viru district and Estonia), regional (the Baltic Sea catchment are) and global peculiarities. The quantitative descriptions of global and Estonian carbon and water cycles will be given. Environmental space and the ecological footprint will be defined and shown how to calculate them. An overview of legal and economic mechanisms developed for the regulation of carbon and water cycles will be given (CO₂-tax, etc.), relevant calculating algorithms will be given. The development problems of Estonian oil shale energetics from the point of view of quantitative indicators of sustainability and also through prism will be presented. In the frame of the study the quantitative assessment principles will be dealt both on global and local (the catchment area of the Baltic Sea, Estonia and regions) levels showing the interdependences of the problems encountered at different levels. As great environmental problems in Estonia are concentrated in Ida-Virumaa, a special attention will be drawn to the oil shale mining and energetics.

ДЕСЯТЬ ЛЕТ ПЛАТНОГО ПРИРОДОПОЛЬЗОВАНИЯ В ЭСТОНИИ

ЭННО РЕЙНСАЛУ

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С конца восьмидесятых годов в Эстонии действует система платежей за пользование природными ресурсами. Ввод системы поставил перед собой задачу сократить эксплуатацию минеральных ресурсов и ограничить загрязнение природной среды. Платежи были установлены на добычу полезных ископаемых, выкачивание вод, спуск сточных вод в водоемы, загрязнение воздуха и складирование отходов. Все перечисленные виды платежей автор трактует как единую систему платного природопользования. Ведь по существу, также как ресурсом горной промышленности является полезное ископаемое, так и водоемы и атмосфера, куда выбрасываются отходы, можно рассматривать как промышленное звено производства. Иными