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水利水电专业英语

黄河水利学校 姜同 主编

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中国水利水电出版社

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前　言

《水利水电专业英语》是水利部科教司科教字［1991］第13号文确定的第三轮统编教材之一，供水利水电中专基础英语阶段以后的专业英语及综合练习周使用。为了适应不同专业的需要，本书选材尽可能做到题材广泛而专业知识浅显，内容包括水工、水文、防洪、航运、施工、农田水利、水土保持、水质监测、水力发电、水力机械等方面。为了反映国情，另有几篇各专业通用的介绍我国水资源概况和水利建设成就的文章。

本书课文及阅读材料主要选自 Compton's Encyclopedia、Encyclopedia Americana、Merit Students Encyclopedia 和 Britannic Junior Encyclopedia For Boys And Girls，语言规范、文笔生动、可读性较强。为了适应中专生的英语水平，有的文章作了删节。

全书共分二十课，每课包括课文、阅读材料、生词、注释、练习等部分。生词表的编制以现行初中英语教材及广东编的中专英语教材1—4册为依据，未学过的才收入。

本书由黄河水利学校姜同主编，浙江水利水电专科学校范思学、长江水利水电学校张澜参编，广西水电学校陈幼清主审。姜同负责编写第1—4课以及第18—20课，并对全书进行统稿；范思学负责编写第5—10课；张澜负责编写第11—17课。本书初稿完成于1992年底，1993年5月在北京召开了审稿会。参加审稿会的有陈幼清、王秀成、方苹、朱洁、朱绍武、徐金先、史作政等。与会同志对书稿提出了宝贵意见；周文哲、孙钧伦同志提出了书面意见。

编　者

1994年2月

CONTENTS

Lesson One

Seven Major Rivers in China

Since the founding of the new China in 1949, under the leadership of the Communist Party of China and the People's Government, a tremendous amount of river engineering work has been carried out on numerous rivers, particularly on the seven major rivers namely, the Yangtze, the Yellow, the Huai, the Hai, the Liao, the Pearl and the Songhua. In addition, tens of thousands irrigation projects have been completed throughout the nation. All these engineering works have contributed significantly to various aspects of the national economy.

The seven major rivers being situated in different geographical regions have different characteristics:①

1. The Yellow, Huai and Hai River Basins, disaster-ridden areas in history

These three river basins cover a total area of 1.34 million km^2, where 300 million people are living on 550 million mu of cultivated land. The population and cultivated land make up respectively 30% and 37% of the national total. However, the annual average runoff is only 135.2 billion m^3 or 5% of the national total, the average being 451 m^3 per capita or 243 m^3 per mu of the cultivated land.② These areas are thus the most critical in the country as far as③ water resources are concerned.

2. The Yangtze River Basin, a high-yield agricultural region in China

The Yangtze River Basin has a catchment area of 1.8 million km^2, of which a total of 370 million mu is cultivated, supporting a population of 350 million. The long-term average of annual runoff of the river is 979 billion m^3 and the exploitable hydro-power potential is 190,000 MW, amounting to 53% of the national total. Navigation and fishery are also of very great economic value.

3. The Pearl River Basin, a sub-tropical zone in China

The Pearl River Basin has a catchment area of 450,000 km^2, a population of 76 million and a cultivated land of 78 million mu. Its average annual runoff is 340 billion m^3. This is the basin with the most abundant water resources in China. The hydropower potential in the tributaries is estimated to be 24,850 MW. Navigation and fishery on the middle and lower reaches of the river are of great value.

4. The Songhua and the Liao River Basins in Northeastern China

The region is relatively rich in land resources. It has a total catchment area of 780,000 km^2, a population of 76 million and a cultivated land of 240 million mu. The average annual runoff of the Songhua River Basin is 76 billion m^3 while that of the Liao River

Basin is 15.7 billion m^3.

Principal Characteristics of the Seven Major Rivers in China

River	Catchment area (10^3 km^2)	Annual average runoff (10^9 m^3)	Annual average sediment load (10^6 t)	Water & soil loss area (10^3 km^2)	Population (10^6)	Cultivated land (10^6 mu)	Max. recorded annual runoff (10^9 m^3/year)	Min. recorded annual runoff (10^9 m^3/year)
The Yangtze	1800	979	478	265.5	345	370	1360/1954	676/1978
The Yellow	750	56	1640	391.3	82	196	86.1/1964	20.1/1960
The Huai	270	50	14	52.7	125	188	84.1/1954	6.3/1966
The Hai	320	29.2	81	123.8	98	170	45.8/1963	5.0/1920
The Pearl	450	341	69	35.6	76	78	529.2/1915	127.7/1969
The Liao	230	15.7	41	85.6	29	69	30.2/1954	4.7/1978
The Songhua	550	76		72.2	47	175	121.4/1960	45.1/1968
National total	9600	2600		1203.4	1031	1500		

New Words

1. engineering [ˌendʒiˈniəriŋ] n. 工程
2. tremendous [triˈmendəs] a. 极大的，非常的
3. contribute [kənˈtribjuːt] v. 贡献，起作用
4. significantly [siɡˈnifikəntli] ad. 显著地，突出地
5. aspect ['æspekt] n. 方面，目标
6. geographical [dʒiəˈɡræfikəl] a. 地理的
7. characteristic ['kæriktəristik] n. 特征，特性
8. basin ['beisn] n. 流域，盆地
9. disaster-ridden [diˈzɑːstəˈridn] a. 多灾的
10. runoff ['rʌnˈɔf] n. 径流量
11. cultivate ['kʌltiveit] v. 耕种，开垦
    ~d land 耕地
12. high-yield [haijiːld] a. 高产的
13. catchment ['kætʃmənt] n. 集水(处，量)
    ~ area 集水面积，流域
14. support [səˈpɔːt] v. 支持，供养
15. exploitable [iksˈplɔitəbl] a. 可开发的，可利用的
16. navigation [nævi'ɡeiʃən] n. 航运
17. fishery ['fiʃəri] n. 渔业，水产业
18. sub-tropical [sʌbˈtrɔpikəl] a. 亚热带的
19. maximum ['mæksiməm] (缩写 max.) 最大的
20. minimum ['miniməm] (缩写 min.) 最小的

21. megawatt	[megəwɔt]	(缩写 MW) 兆瓦
22. mu	[mu:]	n. 亩(=0.067 公顷)

Proper Nouns

1. the Yangtze River	长江
2. the Yellow River	黄河
3. the Huai River	淮河
4. the Hai River	海河
5. the Pearl River	珠江
6. the Liao River	辽河
7. the Songhua River	松花江

Phrases and Expressions

1. carry out	实行,实现,贯彻
2. tens of thousands	好几万,数以万计
3. be of great value	极有价值,极为重要
4. annual average runoff	年平均流量
5. water and soil loss	水土流失

Notes

①"being situated in different geographical regions" 是分词短语作原因状语,全 句可译为"七大江河由于位于不同地域而具有不同的特点"。

②"the average being 451 m^3 per capita" 是分词独立结构,全句可译为" 但多年平均 流量只有 1352 亿立米,占全国的 5%,人均占有水量 451 立米,每亩耕地占有水量 243 立米"。

③ 词组"as far as"或"so far as"意即"至于,就…"此处可译为"就水资源而言"。

Exercises

I. Comprehension

Part A. Are these statements true or false according to the text?

( )1. There are seven major rivers in China. They are the Yangtze, the Yellow, the Huai, the Hai, the Liao, the Pearl, and the Songhua.

( )2. The seven major rivers have different characteristics, because they are situated in different geographical regions.

( )3. The Yangtze River Basin is the most critical in water resources in the country.

( )4. The exploitable hydropower potential of the Pearl River Basin amounts to 53% of the national total.

Part B. Choose the right answer according to the text.

Among the seven major rivers in China

1. the river which has the largest catchment area is _____.

A. the Yellow B. the Liao C. the Yangtze D. the Pearl

2. the river which has the largest area of cultivated land is _____.

A. the Hai B. the Yellow C. the Yangtze D. the Songhua

3. the river which has the most serious water and soil loss is _____.

A. the Hai B. the Pearl C. the Yangtze D. the Yellow

4. the river which has the largest sediment load is _____.

A. the Yellow B. the Yangtze C. the Huai D. the Liao

II. Word Building

1. The prefix "hydro-" means "water", "liquid". Give the Chinese meanings of the following words:

hydropower ( ) hydro-plant( )

hydrotest( ) hydromechanics( )

hydroenergy( ) hydrochemistry( )

hydrochart( ) hydrotechnics( )

2. The prefix "auto-" means "self". Give the Chinese meanings of the following words:

automobile( ) autoalarm( )

autodecomposition( ) autocontrol( )

autopurification ( ) autoregulation( )

autosampler( ) autolift( )

III. Translate the 1st paragraph of the text into Chinese.

Reading Material

Present Status and Major Problems of River Regulation in China

After forty-some years of hard work throughout the nation, great achievements have been made in river regulation. The benefits achieved are mainly as follows:

1) By constructing numerous storage projects of various sizes, flows in rivers are partially under control, thus creating favourable conditions for flood prevention and resources development.

2) The capacity to control the floods of rivers has been so increased that the vast plains in the middle and lower reaches of rivers are now primarily safe from floods.

3) Favourable conditions have been created for the increasing of agricultural production.

4) Water supplies have been provided to cities, industrial areas and those places

where drinking water is insufficient.

5) Initial development of multipurpose projects of hydropower, navigation, fishery and others has been achieved.

In the regulation of rivers, there are four major problems of national importance that should be considered in drafting strategic plans for the country's construction. They are as follows:

1. Floods in the main rivers

Since 1949, the ordinary floods have been put under control but the extraordinary floods have yet to be conquered. It is expected that the more the national economy is developed in the future, the greater would be the losses due to floods.

2. Shortage of water in North China

The annual runoff of China's surface water is 2,600 billion m^3 which ranks the sixth in the world. However, the water quantity per capita in China is only 2,700 m^3, which is far less than the average amount of 10,930 m^3 of the world. In China , not only the quota of water per capita is low, but also the water resources are unevenly distributed. Generally speaking, water resource is abundant in the south and deficient in the north.

3. Multi-purpose utilization of water resources

The exploitable hydropower potential of China is 380 million kW, being the foremost in the world. Hydropower is an important component of China's energy resources. At present, only 9.1% of the hydropower potential has been developed and utilized. Therefore, the construction of various water projects calls for comprehensive studies of disaster defense on the one hand and beneficial development on the other, so that the water resources can be exploited to the fullest extent through multiple purpose application.

4. Water pollution

Water pollution has become increasingly serious. The main rivers and lakes as well as the reservoirs have been polluted to various degrees.

New Words

1. status	['steitəs]	n. 情况，状况
2. forty-some	['fɔ:tisʌm]	四十多，四十有余
3. benefit	['benifit]	n. 利益，好处
4. construct	[kən'strʌkt]	vt. 建造
5. partially	['pa:ʃəli]	ad. 部分地，局部地
6. primarily	['praimərili]	ad. 根本地，主要地
7. favourable	['feivərəbl]	a. 有利的，顺利的
8. insufficient	[insə'fiʃənt]	a. 不足的，不够的
9. multipurpose	['mʌlti'pə:pəs]	a. 多种用途的

10. initial	[iˈniʃəl]	a. 最初的，开始的
11. strategic	[strəˈtiːdʒik]	a. 战略的
12. extraordinary	[ˌiksˈtrɔːdnri]	a. 非常的，特大的
13. conquer	[ˈkɔŋkə]	vt. 征服，战胜
14. quota	[ˈkwəutə]	n. 定额，限额
15. capita per～	[ˈkæpitə]	(caput 之复数)头 人均，每人
16. unevenly	[ʌnˈiːvənli]	ad. 不匀衡地
17. distribute	[disˈtribjut]	vt. 分配，分布
18. abundant	[əˈbʌndənt]	a. 丰富的，充裕的
19. deficient	[diˈfiʃənt]	a. 不足的，缺乏的
20. kilowatt	[ˈkiləwɔt]	(缩写 kW)千瓦
21. utilization	[ˌjuːtilaiˈzeiʃən]	n. 利用
22. disaster	[diˈzɑːstə]	n. 灾难，天灾
23. defense	[diˈfens]	n. 防御，防护
24. multiple	[ˈmʌltipl]	a. 综合的，多重的
25. purpose	[ˈpəːpəs]	n. 目的，意图，效用
26. application	[æpliˈkeiʃən]	n. 应用，运用
27. increasingly	[inˈkriːsiŋli]	ad. 日益，继续增加地

Phrases and Expressions

1. river regulation	河道整治，治河
2. as follows	如下
3. storage project	蓄水工程
4. under control	控制
5. flood prevention	防洪，防汛
6. surface water	地表水
7. call for	需要，要求
8. on the one hand…，on the other…	一方面…，另一方面…
9. to the fullest extent	最大限度地
10. to various degrees	不同程度地

Reading Comprehension

Are these statements true or fasle according to the text?

( ) 1. Since liberation we have made great achievements in the regulation of rivers.

( ) 2. The construction of water conservancy should be always considered together

with the country's construction.

( ) 3. North China is rich in water resources, and in Southwest China water resources are deficient.

( )4. At present, hydropower potential in China has been exploited and utilized to the fullest extent.

Lesson Two

Achievements in Construction of Water Conservancy and Hydropower

Since 1949, we have successfully completed a lot of planning , exploration and engineering work in water conservancy and hydropower projects on our own foot.

For hydropower, the total installed capacity of the hydropower of the whole country in 1949 was only 360 MW with an annual power generation of 1.2 TWh which ranks the 20th and 21st respectively in the world. By the end of 1989 the installed capacity of hydropower totalled 3,583.3 MW with an annual power generation of 118.454 TWh, which ranks the 6th and 5th respectively in the world. The installed capacity of hydropower of the whole country accounts for 27.3% of the total installed capacity in the country, while the hydropower generation amounts to 20.3% of the total power generation in the country. In 1949, China had only 2 large-sized hydropower plants and 1 medium-sized and 58 small-sized ones. By the end of 1989, there are 26 large-sized hydroplants in operation in China, with more than 100 medium-sized and 60000 small-sized power plants spreading all over the territory. Now, 48 large and medium-sized hydroplants with a total installed capacity of 21000 MW are being constructed.

In 1949, China had only 6 large-sized(storage capacity 100 million m^3) reservoirs and 17 medium-sized (storage capacity 10-100 million m^3) reservoirs. By the end of 1989, a total of 82800 reservoirs have been constructed, including 358 large-sized and 2480 medium-sized ones with a total storage of 461.7 billion m^3. China ranks the first in the world so far as the number of reservoirs is concerned. For flood protection, we have rehabilitated and constructed more than 217000 km of embankments which keep 480 million mu of cultivated lands safe from normal flood. As for irrigation, the original under-standard irrigation systems with a coverage totalling 240 million mu of lands have been improved and the coverage have been increased to 720 million mu. There are 5331 irrigated areas, each measuring 10000 mu and more. Moreover, we have been very successful in pumped irrigation, drainage in water-logged areas, water conservancy, improvement of salinized soils and water supply etc. All these data mentioned above clearly shows that we have achieved tremendous achievements and fruitful results in the planning, exploration, design and scientific research of water and hydropower development.

New Words

1. planning ['plæniŋ] n. 规划,设计

2. exploration	[ˌeksplɔ:'reiʃən]	n. 勘探，勘测
3. respectively	[ris'pektivli]	ad. 分别地，各自地
4. hydroplant	[haidrə'plɑ:nt]	n. 水力发电厂
5. large-sized	['lɑ:dʒ'saizd]	a. 大型的
6. medium-sized	['mi:djəm'saizd]	a. 中型的
7. small-sized	['smɔ:l'saizd]	a. 小型的
8. reservoir	['rezəvwɑ:]	n. 水库，蓄水池
9. include	[in'klu:d]	vt. 包括
10. storage	['stɔ:ridʒ]	n. 蓄水，贮藏
11. flood	[flʌd]	n. 洪水
12. rehabilitate	[ˌri:hə'biliteit]	v. 修复，复原
13. embankment	[im'bæŋkmənt]	n. 堤防，堤岸
14. coverage	['kʌvəridʒ]	n. 范围，面积
15. pump	[pʌmp]	n. 抽水机，vt. 抽水
16. irrigation	[iri'geiʃən]	n. 灌溉
17. drainage	['dreinidʒ]	n. 排水，放水
18. improvement	[im'pru:vmənt]	n. 改进，改善
19. mention	['menʃən]	v. 提到，说起
20. fruitful	['fru:tful]	a. 富有成效的，丰硕的

Phrases and Expressions

1. water conservancy	水利
2. installed capacity	装机容量
3. on our own foot	自力更生，靠自己的力量
4. generation amount	发电量
5. storage capacity	库容
6. water-logged area	内涝地区，积水地区
7. salinized soil	盐碱地

Exercises

I. Comprehension

Part A. Are these statements true or false according to the text?

( ) 1. Since the founding of the new China, we have made great achievements in water conservancy and hydropower.

( ) 2. The total installed capacity of the hydropower of the old China was less than 400 MW.

( ) 3. By the end of 1989, the hydropower generation amounts for 60.5% of the

total generation in the country.

( ) 4. By the end of 1980's a total of 82800 reservoirs have been completed, including 2480 large-sized and 358 medium ones.

Part B. Choose the right answer according to the text.

1. Before liberation, the total installed capacity of the hydropower of China ranks _____ in the world.

A. the 5th B. the 6th C. the 20th D. the 21st

2. Before 1949, there were _____ large-sized and medium-sized hydroplants in China.

A. many B. not any C. few D. a few

3. In China there are more than 60000 hydroplants of which most are _____

A. large-sized B. small-sized

C. medium-sized D. large-sized and medium-sized

4. China ranks the first in the world so far as _____ is concerned.

A. the number of reservoirs

B. the number of large-sized hydroplants

C. the total installed capacity of the hydropower

D. the irrigated area

II. Word Building

1. The prefix "re-" means "again" or "back". Give the Chinese meanings of the following words:

reflow ( ) refill ( )

renew ( ) rejoint ( )

restart ( ) reproduce ( )

recycle ( ) reforestation ( )

2. The prefix "sub-" means "under", "below". Give the Chinese meanings of the following worlds:

subsoil( ) subsurface( )

subarea( ) sublayer( )

subnormal( ) subprocess( )

subway( ) subzero( )

III. Translate the 2nd paragraph of the text into Chinese.

Reading Material

China's Water Power Resources

The exploitable hydropower resources in China reach 380 GW, ranking first in the world, but so far only 9.1% has been exploited, leaving much room for development. At