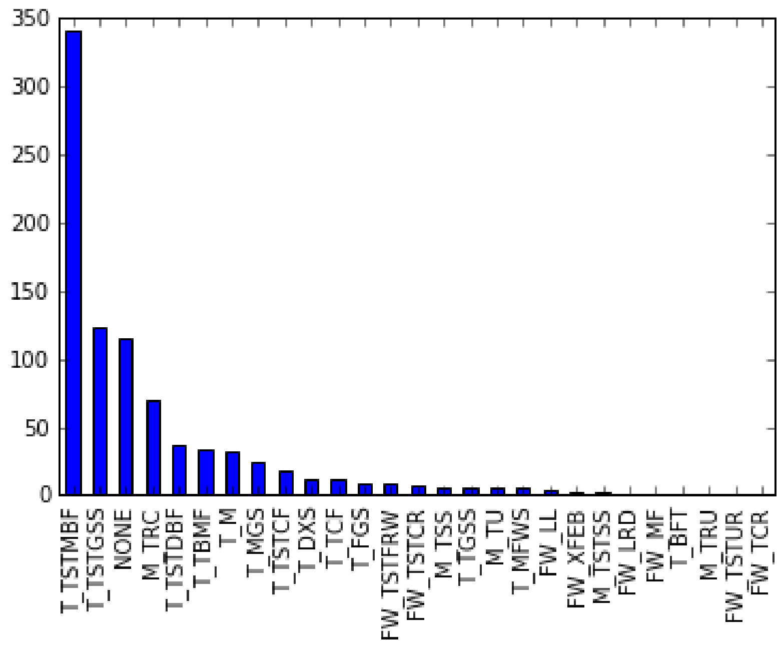
In [27]:
```
%matplotlib inline
import json
from pprint import pprint
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt

with open('json/aid.json') as data_file:
    data = data_file.readlines()

first = data[0]
j = json.loads(first.rstrip())

biomes = []

for l in data:
    bio = json.loads(l.rstrip())
    if(bio['biome'] != None):
        biomes.append(bio['biome']['biome'])
    else:
        biomes.append("NONE")

biomedf = pd.Series(data = biomes).value_counts()
```

In [20]:
```
biomedf.plot.bar()
```

Out[20]:
```
<matplotlib.axes._subplots.AxesSubplot at 0x106df1f10>
```

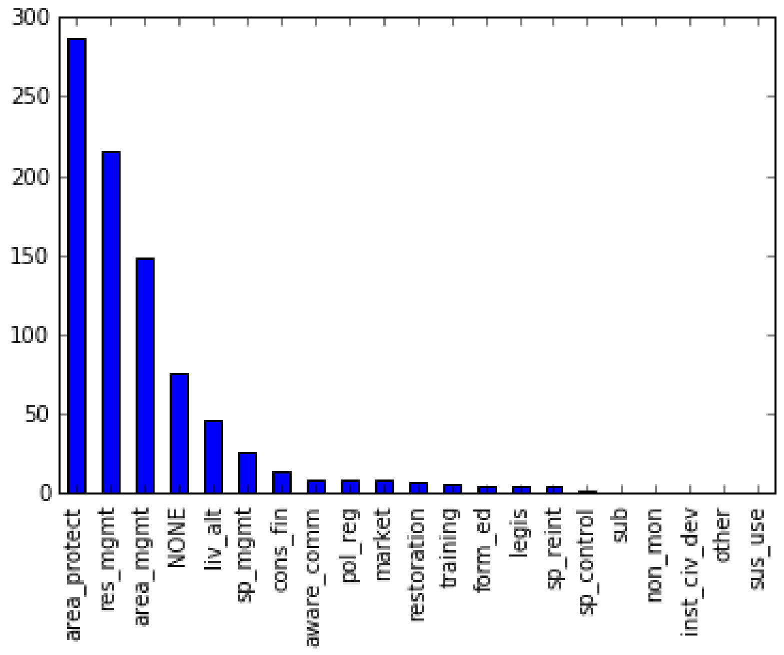


In [4]:
```
interv = []

print(json.loads(data[0].rstrip())['interv']['Int_type'])

for l in data:
    inter = json.loads(l.rstrip())
    if(inter['interv'] != None):
        interv.append(inter['interv']['Int_type'])
    else:
        interv.append("NONE")

intervdf = pd.Series(data = interv).value_counts()
pprint(intervdf)
```

```
sp_mgmt
area_protect    287
res_mgmt        215
area_mgmt       149
NONE             76
liv_alt          46
sp_mgmt          26
cons_fin         14
aware_comm        9
pol_reg           9
market            9
restoration       7
training          6
form_ed           5
legis             5
sp_reint          4
sp_control        2
sub               1
non_mon           1
inst_civ_dev      1
other             1
sus_use           1
dtype: int64
```

```
In [5]: intervdf.plot.bar()
```

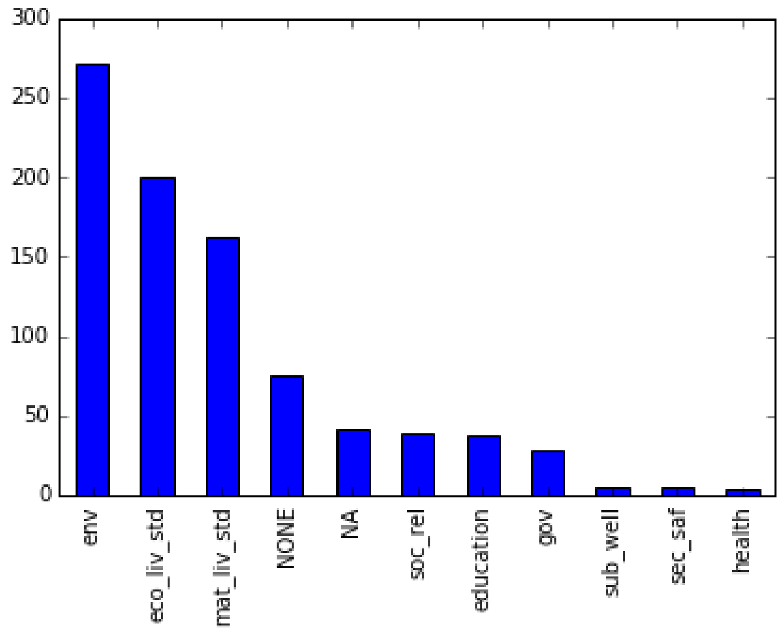
```
Out[5]: <matplotlib.axes._subplots.AxesSubplot at 0x1069d05d0>
```



```
In [6]: outcomes = []

        print(json.loads(data[0].rstrip())['outcome']['Outcome'])

        for l in data:
            outcome = json.loads(l.rstrip())
            if(outcome['outcome'] != None):
                outcomes.append(outcome['outcome']['Outcome'])
            else:
                outcomes.append("NONE")

        outcomedf = pd.Series(data = outcomes).value_counts()
        pprint(outcomedf)
```

```
soc_rel
env              272
eco_liv_std      201
mat_liv_std      163
NONE              76
NA                42
soc_rel           39
education         38
gov               28
sub_well           6
sec_saf            5
health             4
dtype: int64
```

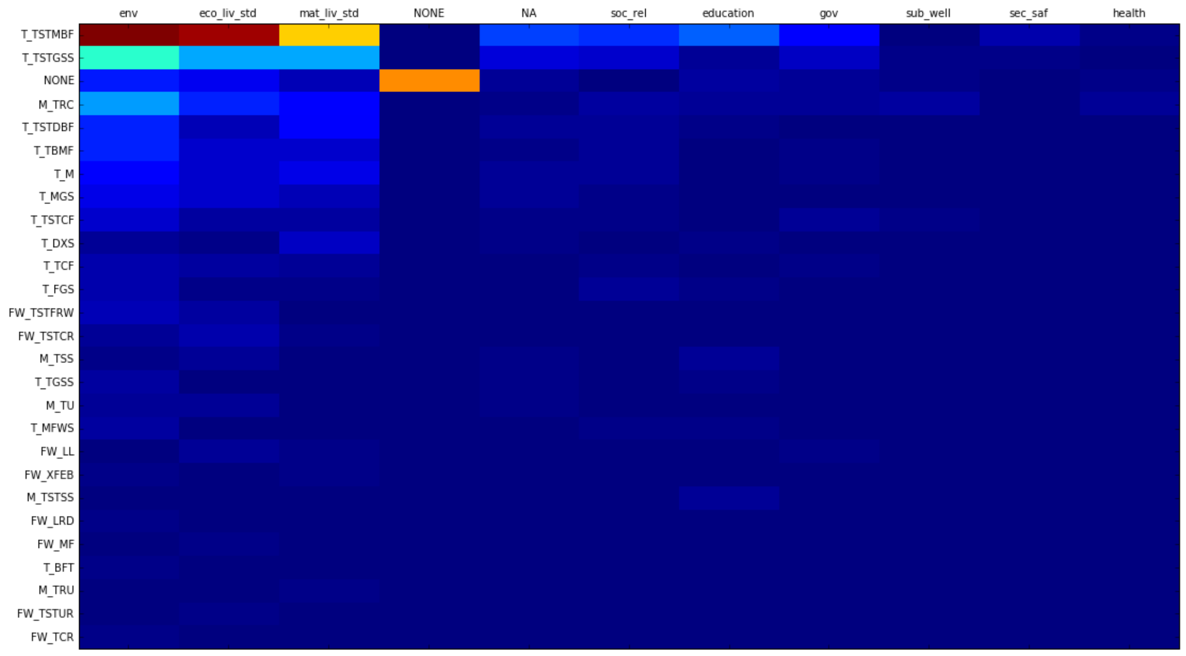
```
In [7]: outcomedf.plot.bar()

Out[7]: <matplotlib.axes._subplots.AxesSubplot at 0x106be2d50>
```



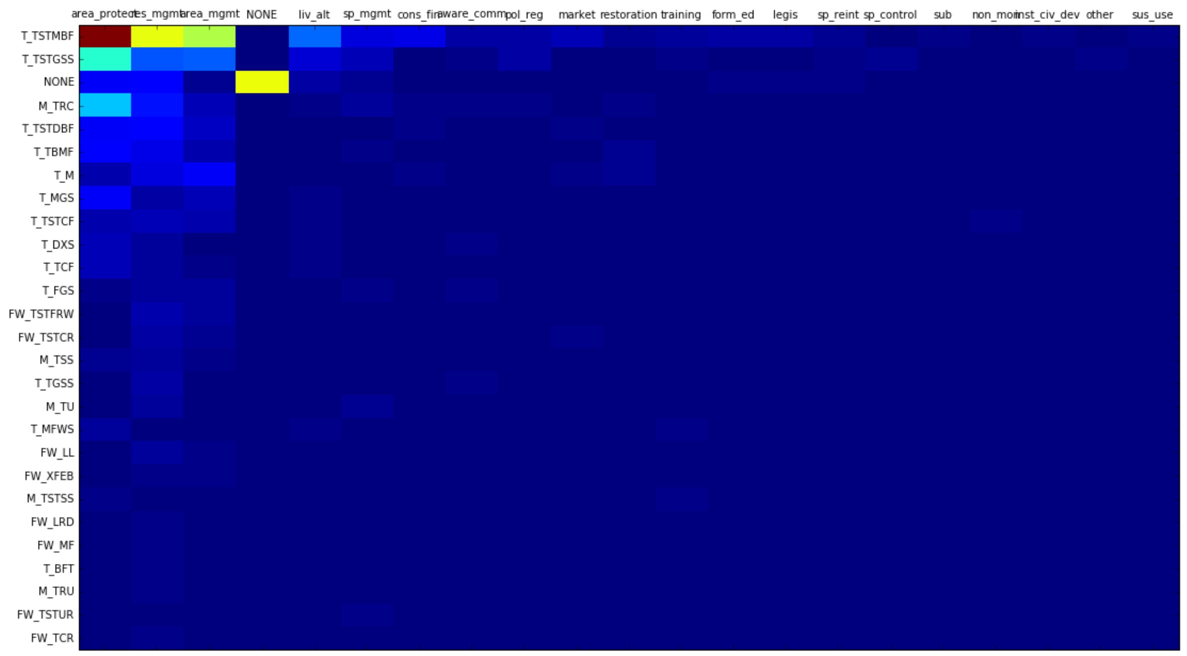
In [12]:
```
def seriesToMap(series):
    a = pd.np.array(series.keys())
    i = 0
    dict = {}
    for s in a:
        dict[s] = i
        i += 1
    return dict

biomeMap = seriesToMap(biomedf)
outcomeMap = seriesToMap(outcomedf)
internvMap = seriesToMap(intervdf)
```

```
{u'FW_LL': 18,
 u'FW_LRD': 21,
 u'FW_MF': 22,
 u'FW_TCR': 26,
 u'FW_TSTCR': 13,
 u'FW_TSTFRW': 12,
 u'FW_TSTUR': 25,
 u'FW_XFEB': 19,
 u'M_TRC': 3,
 u'M_TRU': 24,
 u'M_TSS': 14,
 u'M_TSTSS': 20,
 u'M_TU': 16,
 'NONE': 2,
 u'T_BFT': 23,
 u'T_DXS': 9,
 u'T_FGS': 11,
 u'T_M': 6,
 u'T_MFWS': 17,
 u'T_MGS': 7,
 u'T_TBMF': 5,
 u'T_TCF': 10,
 u'T_TGSS': 15,
 u'T_TSTCF': 8,
 u'T_TSTDBF': 4,
 u'T_TSTGSS': 1,
 u'T_TSTMBF': 0}
```

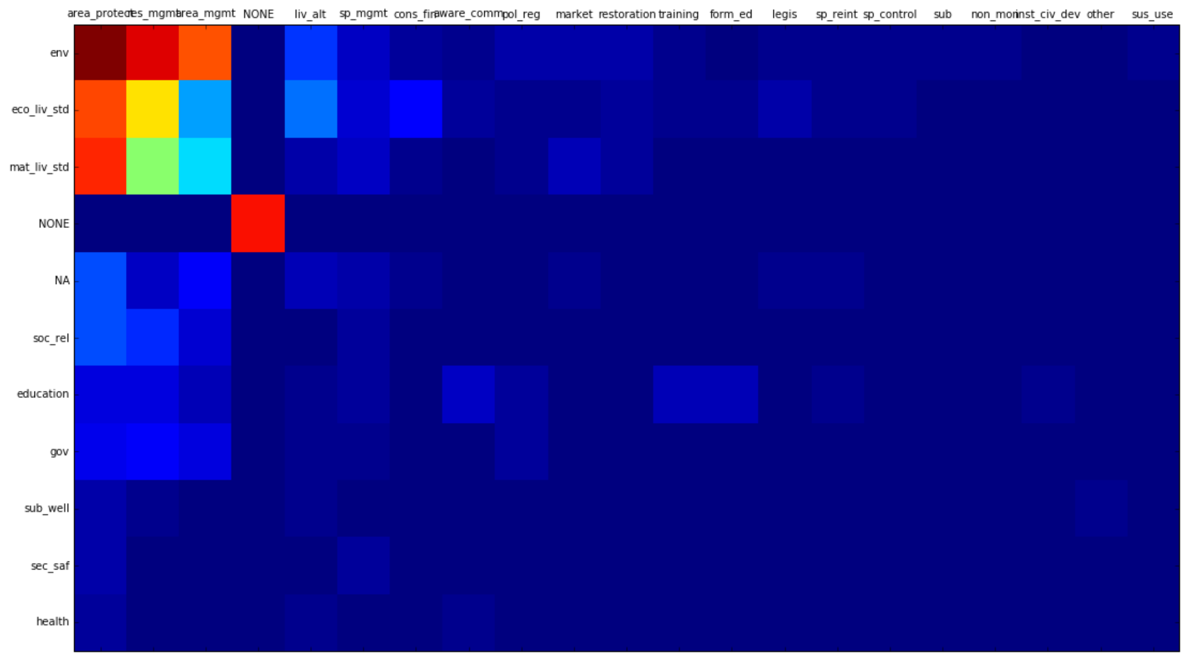
In [73]:
```
m = len(biomeMap)
n = len(outcomeMap)
matrix = np.zeros( (m,n) )
for l in data:
    j = json.loads(l.rstrip())
    outcome = j['outcome']
    biome = j['biome']
    oc = 0
    if(outcome == None):
        oc = outcomeMap['NONE']
    else:
        oc = outcomeMap[outcome['Outcome']]
    bi = 0
    if(biome == None):
        bi = biomeMap['NONE']
    else:
        bi = biomeMap[biome["biome"]]
    matrix[bi,oc] += 1

outbio = pd.DataFrame(data=matrix,columns=outcomedf.keys(),index=bi
omedf.keys())
show = plt.matshow(outbio, interpolation='nearest', aspect='auto')

fig = matplotlib.pyplot.gcf()
fig.set_size_inches(18.5, 10.5)

ax = show.axes
_ = ax.set_xticks(np.linspace(0, n-1, n))
_ = ax.set_xticklabels(outbio.columns)
_ = ax.set_yticks(np.linspace(0, m-1, m))
_ = ax.set_yticklabels(outbio.index)
```


env
eco_liv_std
mat_liv_std
NONE
NA
soc_rel
education
gov
sub_well
sec_saf
health
T_TSTMBF
T_TSTGSS
NONE
M_TRC
T_TSTDBF
T_TBMF
T_M
T_MGS
T_TSTCF
T_DXS
T_TCF
T_FGS
FW_TSTFRW
FW_TSTCR
M_TSS
T_TGSS
M_TU
T_MFWS
FW_LL
FW_XFEB
M_TSTSS
FW_LRD
FW_MF
T_BFT
M_TRU
FW_TSTUR
FW_TCR

```
In [76]: m = len(biomeMap)
         n = len(internvMap)
         matrix2 = np.zeros( (m,n) )
         for l in data:
             j = json.loads(l.rstrip())
             interv = j['interv']
             biome = j['biome']
             oc = 0
             if(interv == None):
                 oc = internvMap['NONE']
             else:
                 oc = internvMap[interv['Int_type']]
             bi = 0
             if(biome == None):
                 bi = biomeMap['NONE']
             else:
                 bi = biomeMap[biome["biome"]]
             matrix2[bi,oc] += 1

         outbio = pd.DataFrame(data=matrix2,columns=intervdf.keys(),index=bi
         omedf.keys())
         show = plt.matshow(outbio, interpolation='nearest', aspect='auto')

         fig = matplotlib.pyplot.gcf()
         fig.set_size_inches(18.5, 10.5)

         ax = show.axes
         _ = ax.set_xticks(np.linspace(0, n-1, n))
         _ = ax.set_xticklabels(outbio.columns)
         _ = ax.set_yticks(np.linspace(0, m-1, m))
         _ = ax.set_yticklabels(outbio.index)
```



In [79]:
```
m = len(outcomeMap)
n = len(internvMap)
matrix3 = np.zeros( (m,n) )
for l in data:
    j = json.loads(l.rstrip())
    interv = j['interv']
    outcome = j['outcome']
    oc = 0
    if(interv == None):
        oc = internvMap['NONE']
    else:
        oc = internvMap[interv['Int_type']]
    bi = 0
    if(outcome == None):
        bi = outcomeMap['NONE']
    else:
        bi = outcomeMap[outcome["Outcome"]]
    matrix3[bi,oc] += 1

outbio = pd.DataFrame(data=matrix3,columns=intervdf.keys(),index=ou
tcomedf.keys())
show = plt.matshow(outbio, interpolation='nearest', aspect='auto')

fig = matplotlib.pyplot.gcf()
fig.set_size_inches(18.5, 10.5)

ax = show.axes
_ = ax.set_xticks(np.linspace(0, n-1, n))
_ = ax.set_xticklabels(outbio.columns)
_ = ax.set_yticks(np.linspace(0, m-1, m))
_ = ax.set_yticklabels(outbio.index)
```



```
In [ ]:
```